MITSUBISHI ELECTRIC

Changes for the Better

SPLIT-TYPE, HEAT PUMP AIR CONDITIONERS

CE

2004

No.OC294
REVISED-EDITION-D

TECHNICAL & SERVICE MANUAL

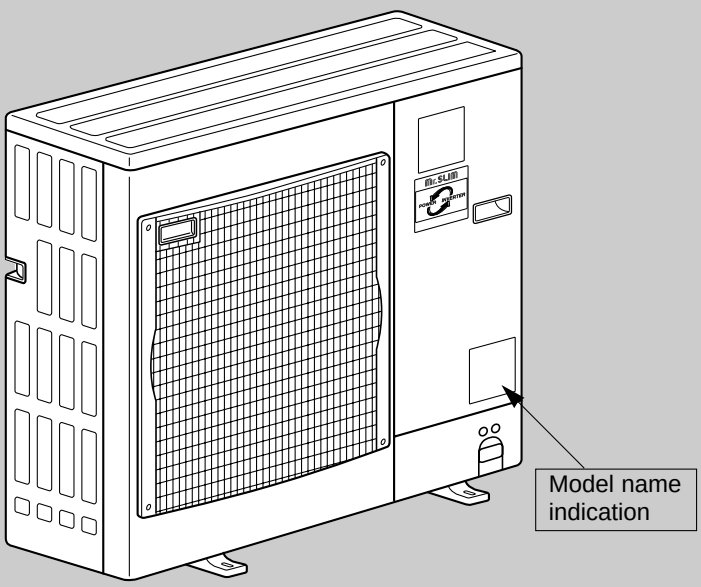
R410A

Outdoor unit

[model names]	[Service Ref.]
PUHZ-RP1.6VHA	PUHZ-RP1.6VHA
PUHZ-RP2VHA	PUHZ-RP2VHA
PUHZ-RP2.5VHA	PUHZ-RP2.5VHA
	PUHZ-RP2.5VHA$_1$
PUHZ-RP3VHA	PUHZ-RP3VHA
	PUHZ-RP3VHA$_1$
PUHZ-RP4VHA	PUHZ-RP4VHA
	PUHZ-RP4VHA$_1$
PUHZ-RP5VHA	PUHZ-RP5VHA
	PUHZ-RP5VHA$_1$
PUHZ-RP6VHA	PUHZ-RP6VHA
	PUHZ-RP6VHA$_1$
PUHZ-RP4YHA	PUHZ-RP4YHA
PUHZ-RP5YHA	PUHZ-RP5YHA
PUHZ-RP6YHA	PUHZ-RP6YHA

Revision:
- PUHZ-RP4YHA, PUHZ-RP5YHA, PUHZ-RP6YHA are added in REVISED EDITION-D.
- Some descriptions have been modified.

- Please void OC294 REVISED EDITION-C.



PUHZ-RP2.5VHA
PUHZ-RP3VHA

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1 TECHNICAL CHANGES

PUHZ-RP4VHA → PUHZ-RP4VHA$_1$
PUHZ-RP5VHA → PUHZ-RP5VHA$_1$
PUHZ-RP6VHA → PUHZ-RP6VHA$_1$

1. Reduced Design Pressure:
   Design Pressure has been changed from 4.41MPa to 4.15MPa.
   (High Pressure Switch has been changed.)
2. Partial Change on Refrigerant Circuit:
   Only 1 distributor is adopted on the Heat Exchanger. (Previously 2)
3. Partial Change on Electrical Wiring:
   Change of reactor (DCL).
   Only 1 reactor (DCL) is adopted. (Previously 2)
4. New Service Parts as a result of the structural improvement:
   - Power Receiver
   - Separator
   - Rubber Mount (for a Compressor)
   - Thermistor (2 phase pipe, Outdoor temperature)
   - Thermistor (Discharge)
   - Linear Expansion Valve Coil
5. Reduced Refrigerant Amount
   The Charged Refrigerant Amount has been reduced from 5.5kg to 5.0kg
6. Wider Operation Range:
   A change is made on the Minimum Capacity.
   (For details, please refer to the Service Manual for indoor units.)

PUHZ-RP2.5VHA → PUHZ-RP2.5VHA$_1$
PUHZ-RP3VHA → PUHZ-RP3VHA$_1$

1. The parts below have been changed.
   - Thermistor (Outdoor pipe / TH3)
   - Linear expansion valve coil
2. The refrigerant circuit has been changed.
   - High pressure switch (4.41MPa → 4.14MPa)
   - Charge plug

2 SAFETY PRECAUTION

2-1. CAUTIONS RELATED TO NEW REFRIGERANT

Cautions for units utilizing refrigerant R410A

Use new refrigerant pipes.

In case of using the existing pipes for R22, be careful with the followings.
· For RP4, 5 and 6, be sure to perform replacement operation before test run.
· Change flare nut to the one provided with this product. Use a newly flared pipe.
· Avoid using thin pipes.

Make sure that the inside and outside of refrigerant piping is clean and it has no contamination such as sulfur hazardous for use, oxides, dirt, shaving particles, etc.
In addition, use pipes with specified thickness.

Contamination inside refrigerant piping can cause deterioration of refrigerant oil etc.

Store the piping to be used during installation indoors and keep both ends of the piping sealed until just before brazing. (Leave elbow joints, etc. in their packaging.)

If dirt, dust or moisture enter into refrigerant cycle, that can cause deterioration of refrigerant oil or malfunction of compressor.

Use ester oil, ether oil or alkylbenzene oil (small amount) as the refrigerant oil applied to flares and flange connections.

If large amount of mineral oil enter, that can cause deterioration of refrigerant oil etc.

Charge refrigerant from liquid phase of gas cylinder.

If the refrigerant is charged from gas phase, composition change may occur in refrigerant and the efficiency will be lowered.

Do not use refrigerant other than R410A.

If other refrigerant (R22 etc.) is used, chlorine in refrigerant can cause deterioration of refrigerant oil etc.

Use a vacuum pump with a reverse flow check valve.

Vacuum pump oil may flow back into refrigerant cycle and that can cause deterioration of refrigerant oil etc.

Use the following tools specifically designed for use with R410A refrigerant.

The following tools are necessary to use R410A refrigerant.

Tools for R410A	
Gauge manifold	Flare tool
Charge hose	Size adjustment gauge
Gas leak detector	Vacuum pump adaptor
Torque wrench	Electronic refrigerant charging scale

Keep the tools with care.

If dirt, dust or moisture enter into refrigerant cycle, that can cause deterioration of refrigerant oil or malfunction of compressor.

Do not use a charging cylinder.

If a charging cylinder is used, the composition of refrigerant will change and the efficiency will be lowered.

Ventilate the room if refrigerant leaks during operation. If refrigerant comes into contact with a flame, poisonous gases will be released.

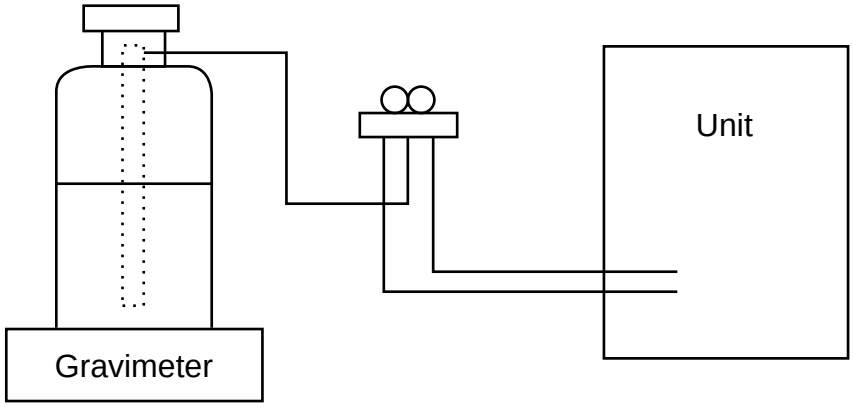
[1] Cautions for service

(1) Perform service after collecting the refrigerant left in unit completely.
(2) Do not release refrigerant in the air.
(3) After completing service, charge the cycle with specified amount of refrigerant.
(4) When performing service, install a filter drier simultaneously.
Be sure to use a filter drier for new refrigerant.

[2] Additional refrigerant charge

When charging directly from cylinder

· Check that cylinder for R410A on the market is syphon type.
· Charging should be performed with the cylinder of syphon stood vertically. (Refrigerant is charged from liquid phase.)



[3] Service tools

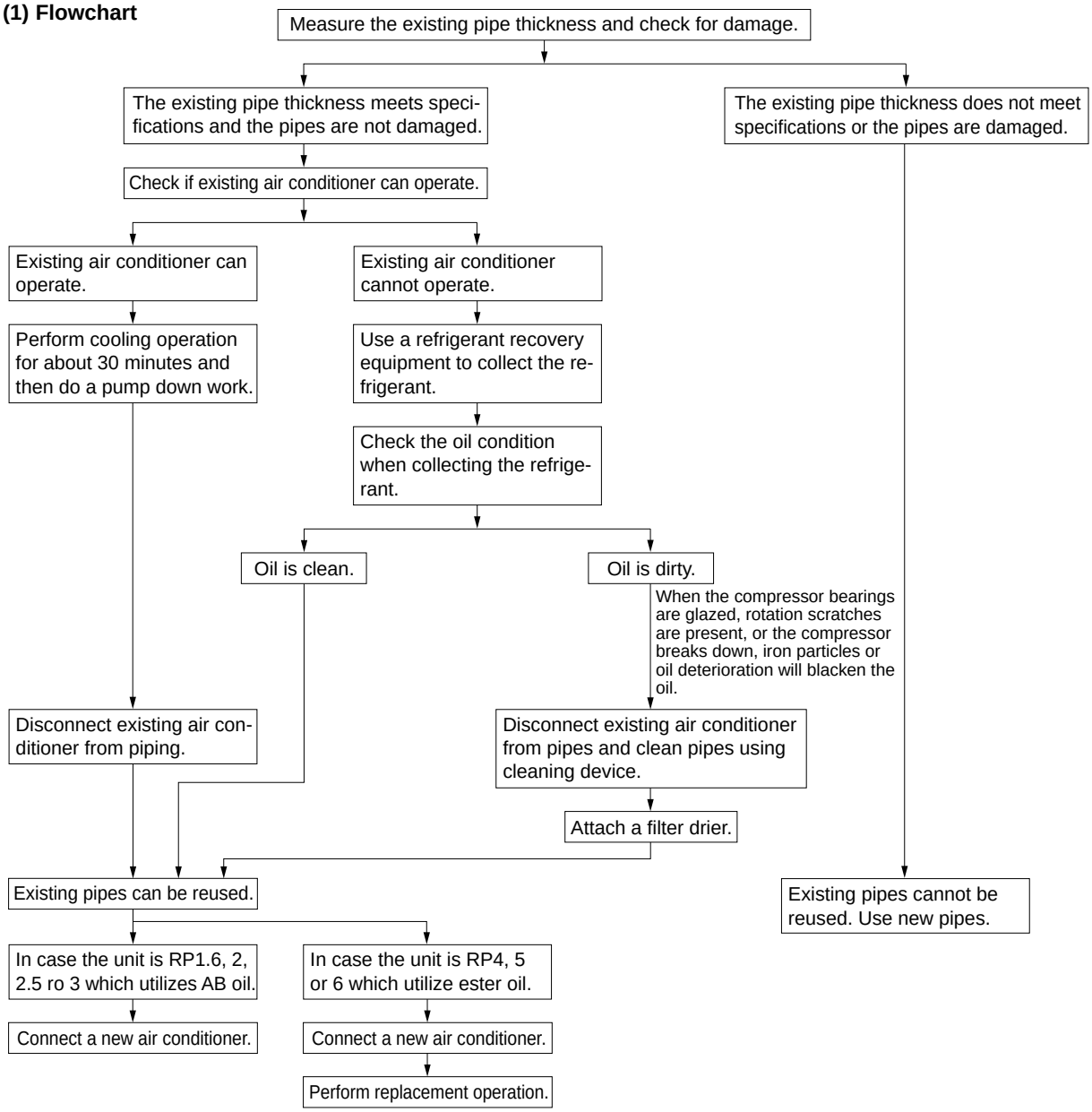
Use the below service tools as exclusive tools for R410A refrigerant.

No.		Specifications
①	Gauge manifold	·Only for R410A
		·Use the existing fitting specifications. (UNF1/2)
		·Use high-tension side pressure of 5.3MPa·G or over.
②	Charge hose	·Only for R410A
		·Use pressure performance of 5.09MPa·G or over.
③	Electronic scale	——
④	Gas leak detector	·Use the detector for R134a, R407C or R410A.
⑤	Adaptor for reverse flow check	·Attach on vacuum pump.
⑥	Refrigerant charge base	——
⑦	Refrigerant cylinder	·Only for R410A Top of cylinder (Pink) Cylinder with syphon
⑧	Refrigerant recovery equipment	——

2-2. CHANGED POINT

• Precautions when reusing existing R22 refrigerant pipes

(1) Flowchart


Measure the existing pipe thickness and check for damage.
The existing pipe thickness meets specifications and the pipes are not damaged.
The existing pipe thickness does not meet specifications or the pipes are damaged.
Check if existing air conditioner can operate.
Existing air conditioner can operate.
Existing air conditioner cannot operate.
Perform cooling operation for about 30 minutes and then do a pump down work.
Use a refrigerant recovery equipment to collect the refrigerant.
Check the oil condition when collecting the refrigerant.
Oil is clean.
Oil is dirty.
When the compressor bearings are glazed, rotation scratches are present, or the compressor breaks down, iron particles or oil deterioration will blacken the oil.
Disconnect existing air conditioner from piping.
Disconnect existing air conditioner from pipes and clean pipes using cleaning device.
Attach a filter drier.
Existing pipes can be reused.
Existing pipes cannot be reused. Use new pipes.
In case the unit is RP1.6, 2, 2.5 ro 3 which utilizes AB oil.
In case the unit is RP4, 5 or 6 which utilize ester oil.
Connect a new air conditioner.
Connect a new air conditioner.
Perform replacement operation.

·When performing replacement operation, make sure that DIP SW8-2 on outdoor unit controller board is set to ON.

※Chemical compounds containing chlorine left in existing pipes are collected by replace filter.

●The air conditioner automatically performs cooling operation through replace filter for about 2 hours.

Connecting a new air conditioner
①Flaring work should be done so that flare meets the dimension for R410A. Use flare nut provided with indoor and outdoor unit.
②When using gas piping of ϕ19.05mm for RP4, 5 or 6. Make sure that DIP SW8-1 on outdoor unit controller board is set to ON. ※This is to keep the pressure on pipes within permissible range. ●Use different diameter joint or adjust the piping size by brazing.
③When using pipes larger than specified size for RP1.6, 2, 2.5 or 3. Make sure that DIP SW8-1 on outdoor unit controller board is set to ON. ※This is to prevent oil flow ratio from lowering due to the decrease in flowing refrigerant. ●Use different diameter joint or adjust the piping size by brazing.
④When existing pipes are specified size. The pipes can be reused referring to table 1 on page 18. ●Use different diameter joint or adjust the piping size by brazing.
★When using existing pipes for RP4, 5 and 6. Make sure that DIP SW8-2 on outdoor unit controller board is set to ON and perform replacement operation. ※Chemical compounds containing chlorine left in existing pipes are collected by replace filter. ●The air conditioner automatically performs cooling operation through replace filter for about 2 hours.

(2) Cautions for refrigerant piping work

New refrigerant R410A is adopted for replacement inverter series. Although the refrigerant piping work for R410A is same as for R22, exclusive tools are necessary so as not to mix with different kind of refrigerant. Furthermore as the working pressure of R410A is 1.6 time higher than that of R22, their sizes of flared sections and flare nuts are different.

①Thickness of pipes

Because the working pressure of R410A is higher compared to R22, be sure to use refrigerant piping with thickness shown below. (Never use pipes of 0.7mm or below.)

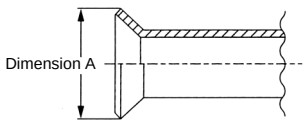
Diagram below: Piping diameter and thickness

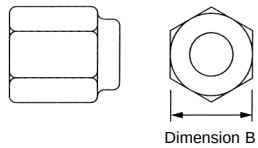
Nominal dimensions	Outside diameter (mm)	Thickness (mm)	
		R410A	R22
1/4”	6.35	0.8	0.8
3/8”	9.52	0.8	0.8
1/2”	12.70	0.8	0.8
5/8”	15.88	1.0	1.0
3/4”	19.05	—	1.0

②Dimensions of flare cutting and flare nut

The component molecules in HFC refrigerant are smaller compared to conventional refrigerants. In addition to that, R410A is a refrigerant, which has higher risk of leakage because of its working pressure higher than that of other refrigerants. Therefore, to enhance airtightness and intensity, flare cutting dimension of copper pipe for R410A have been specified separately from the dimensions for other refrigerants as shown below. The dimension B of flare nut for R410A also have partly been changed to increase intensity as shown below. Set copper pipe correctly referring to copper pipe flaring dimensions for R410A below. For 1/2” and 5/8”, the dimension B changes.

Use torque wrench corresponding to each dimension.





Flare cutting dimensions (mm)

Nominal dimensions	Outside diameter	Dimension A ($^{+0}_{-0.4}$)	
		R410A	R22
1/4”	6.35	9.1	9.0
3/8”	9.52	13.2	13.0
1/2”	12.70	16.6	16.2
5/8”	15.88	19.7	19.4
3/4”	19.05	—	23.3

Flare nut dimensions (mm)

Nominal dimensions	Outside diameter	Dimension B	
		R410A	R22
1/4”	6.35	17.0	17.0
3/8”	9.52	22.0	22.0
1/2”	12.70	26.0	24.0
5/8”	15.88	29.0 ※	27.0
3/4”	19.05	—	36.0

※36.0mm for indoor unit of RP4, 5 and 6

③Tools for R410A (The following table shows whether conventional tools can be used or not.)

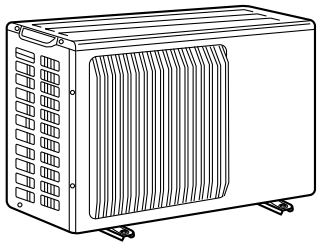
Tools and materials	Use	R410A tools	Can R22 tools be used?	Can R407C tools be used?
Gauge manifold	Air purge and refrigerant charge	Tool exclusive for R410A	×	×
Charge hose	Operation check and the two above	Tool exclusive for R410A	×	×
Gas leak detector	Gas leak check	Tool for HFC refrigerant	×	○
Refrigerant recovery equipment	Collection of refrigerant	Tool exclusive for R410A	×	×
Refrigerant cylinder	Refrigerant charge	Tool exclusive for R410A	×	×
Applied oil	Apply to flared section	Ester oil and alkylbenzene oil (minimum amount)	×	Ester oil: ○ Alkylbenzene oil: minimum amount
Safety charger	Prevent compressor malfunction when charging refrigerant by spraying liquid refrigerant	Tool exclusive for R410A	×	×
Charge valve	Prevent gas from blowing out when detaching charge hose	Tool exclusive for R410A	×	×
Vacuum pump	Vacuum drying and air purge	Tools for other refrigerants can be used if equipped with adopter for reverse flow check	△ (Usable if equipped with adopter for reverse flow)	△ (Usable if equipped with adopter for reverse flow)
Flare tool	Flaring work of piping	Tools for other refrigerants can be used by adjusting flaring dimension	△ (Usable by adjusting flaring dimension)	△ (Usable by adjusting flaring dimension)
Bender	Bend the pipes	Tools for other refrigerants can be used	○	○
Pipe cutter	Cut the pipes	Tools for other refrigerants can be used	○	○
Welder and nitrogen gas cylinder	Weld the pipes	Tools for other refrigerants can be used	○	○
Refrigerant charging scale	Charge refrigerant	Tools for other refrigerants can be used	○	○
Vacuum gauge or thermistor vacuum gauge and vacuum valve	Check the degree of vacuum. (Vacuum valve prevents back flow of oil and refrigerant to thermistor vacuum gauge)	Tools for other refrigerants can be used	○	○
Charging cylinder	Charge refrigerant	Tool exclusive for R410A	×	—

× : Prepare a new tool. (Use the new tool as the tool exclusive for R410A.)
△ : Tools for other refrigerants can be used under certain conditions.
○ : Tools for other refrigerants can be used.

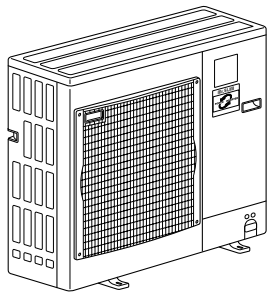
3 COMBINATION OF INDOOR AND OUTDOOR UNITS

	Indoor unit		Outdoor unit						
			Heat pump type						
			PUHZ-RP						
	Service Ref.	Service Manual No.	1.6	2	2.5	3	4	5	6
			VHA	VHA	VHA VHA$_1$	VHA VHA$_1$	VHA VHA$_1$ YHA	VHA VHA$_1$ YHA	VHA VHA$_1$ YHA
Heat pump without electric heater	PEAD-RP▪EA.UK PEAD-RP▪EA$_1$.UK	—	○	○	○	○	○	○	○
	PEAD-RP▪GA.UK	—	—	—	○	○	○	—	—
	PLA-RP▪AA PLA-RP▪AA$_1$	OC293 REVISED EDITION-B	○	○	○	○	○	○	○
	PLA-RP▪AA.UK PLA-RP▪AA$_1$.UK	OC297 REVISED EDITION-D	○	○	○	○	○	○	○
	PKA-RP▪FAL	OC301 REVISED EDITION-A	—	—	○	○	○	—	—
	PKA-RP▪GAL	OC305	○	○	—	—	—	—	—
	PCA-RP▪GA	OC311	—	○	○	○	○	○	○

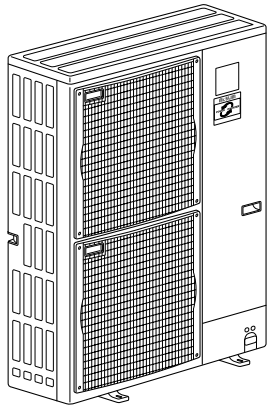
4 PART NAMES AND FUNCTIONS



PUHZ-RP1.6VHA
PUHZ-RP2VHA



PUHZ-RP2.5VHA **PUHZ-RP2.5VHA$_1$**
PUHZ-RP3VHA **PUHZ-RP3VHA$_1$**



PUHZ-RP4VHA **PUHZ-RP4VHA$_1$**
PUHZ-RP5VHA **PUHZ-RP5VHA$_1$**
PUHZ-RP6VHA **PUHZ-RP6VHA$_1$**
PUHZ-RP4YHA
PUHZ-RP5YHA
PUHZ-RP6YHA

CHARGELESS SYSTEM
PRE-CHARGED REFRIGERANT IS SUPPLIED FOR PIPING LENGTH AT SHIPMENT.
(Max.30m(PUHZ-RP1.6~RP6))

The refrigerant circuit with LEV(Linear Expansion Valve) and power receiver always control the optimal refrigerant level regardless of the length (30m max. and 5m min.) of piping. The additional refrigerant charging work during installation often causes problems. Heretofore it is completely eliminated. This unique system improves the quality and reliability of the work done.It also helps to speed up the installation time.

5 SPECIFICATIONS

Service Ref.				PUHZ-RP1.6VHA		PUHZ-RP2VHA	
Function				Cooling	Heating	Cooling	Heating
OUTDOOR UNIT	Power supply (phase, cycle, voltage)			Single, 50Hz, 220/230/240V			
		Running current	A	4.01	4.23	6.16	6.47
	External finish			Munsell 3Y 7.8/1.1			
	Refrigerant control			Linear Expansion Valve			
	Compressor			Hermetic			
		Model		SNB130FLBH			
		Motor output	kW	0.8		1.1	
		Starter type		Line start			
		Protection devices		HP switch Discharge thermo		HP switch Discharge thermo	
	Crankcase heater		W	—			
	Heat exchanger			Plate fin coil			
	Fan	Fan(drive) × No.		Propeller fan × 1			
		Fan motor output	kW	0.043			
		Airflow	m³/min(CFM)	35(1,240)			
	Defrost method			Reverse cycle			
	Noise level	Cooling	dB	44			
		Heating	dB	46			
	Dimensions	W	mm(in.)	800(31-1/2)			
		D	mm(in.)	330+23(11-13/16+7/8)			
		H	mm(in.)	600(23-5/8)			
	Weight		kg(lbs)	45(99)			
	Refrigerant			R410A			
		Charge	kg(lbs)	2.5(5.5)			
		Oil (Model)	L	0.45(NEO22)			
REFRIGERANT PIPING	Pipe size O.D.	Liquid	mm(in.)	6.35(1/4)			
		Gas	mm(in.)	12.7(1/2)			
	Connection method	Indoor side		Flared			
		Outdoor side		Flared			
	Between the indoor & outdoor unit	Height difference		Max. 30m			
		Piping length		Max. 50m			

Notes1. Rating Conditions (ISO5151/13253 T1)
Cooling : Indoor : D.B. 27˚C(80˚F), W.B. 19˚C(66˚F) Outdoor : D.B. 35˚C(95˚F), W.B. 24˚C(75˚F)
Heating : Indoor : D.B. 20˚C(68˚F) Outdoor : D.B. 7˚C(45˚F), W.B. 6˚C(43˚F)
Refrigerant piping length (one way) : 5m (16ft)

2. Guaranteed operating range

		Indoor	Outdoor
Cooling	Upper limit	D.B. 35˚C, W.B. 22.5˚C	D.B. 46˚C
	Lower limit	D.B. 19˚C, W.B. 15˚C	D.B. -5˚C
Heating	Upper limit	D.B. 28˚C	D.B. 21˚C, W.B. 15˚C
	Lower limit	D.B. 17˚C	D.B. -11˚C, W.B. -12˚C

3. Guaranteed voltage
198~264V, 50Hz

4. Above data based on indicated voltage
Indoor Unit 1 phase 230V 50Hz
Outdoor Unit 1 phase 230V 50Hz

5. Refer to the service manual of indoor unit for tha indoor unit's specifications.

Service Ref.				PUHZ-RP2.5VHA PUHZ-RP2.5VHA1		PUHZ-RP3VHA PUHZ-RP3VHA1		PUHZ-RP4VHA PUHZ-RP4VHA1	
Function				Cooling	Heating	Cooling	Heating	Cooling	Heating
OUTDOOR UNIT	Power supply (phase, cycle, voltage)			Single, 50Hz, 220/230/240V					
		Running current	A	6.61	7.50	8.04	9.74	12.33	13.94
	External finish			Munsell 3Y 7.8/1.1					
	Refrigerant control			Linear Expansion Valve					
	Compressor			Hermetic					
		Model		TNB220FMBH				ANV33FDAMT	
		Motor output	kW	1.4		1.6		1.9	
		Starter type		Line start					
		Protection devices		HP switch Discharge thermo				HP switch LP switch Discharge thermo	
	Crankcase heater		W	—					
	Heat exchanger			Plate fin coil					
	Fan	Fan(drive) × No.		Propeller fan × 1				Propeller fan × 2	
		Fan motor output	kW	0.060				0.060+0.060	
		Airflow	m³/min(CFM)	55(1,940)				100(3,530)	
	Defrost method			Reverse cycle					
	Noise level	Cooling	dB	47				49	
		Heating	dB	48				51	
	Dimensions	W	mm(in.)	950(37-3/8)					
		D	mm(in.)	330+30(13+1-3/16)					
		H	mm(in.)	943(37-1/8)				1,350(53-1/8)	
	Weight		kg(lbs)	75(165)				121(267)	
	Refrigerant			R410A					
		Charge	kg(lbs)	3.5(7.7)				5.5(12.1)·····RP4VHA 5.0(11.0)·····RP4VHA1	
		Oil (Model)	L	0.87(NEO22)				1.40(MEL56)	
REFRIGERANT PIPING	Pipe size O.D.	Liquid	mm(in.)	9.52(3/8)					
		Gas	mm(in.)	15.88(5/8)					
	Connection method	Indoor side		Flared					
		Outdoor side		Flared					
	Between the indoor & outdoor unit	Height difference		Max. 30m					
		Piping length		Max. 50m				Max. 75m	

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2. Guaranteed operating range

		Indoor	Outdoor
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	Lower limit	D.B. 19˚C, W.B. 15˚C	D.B. -5˚C
Heating	Upper limit	D.B. 28˚C	D.B. 21˚C, W.B. 15˚C
	Lower limit	D.B. 17˚C	D.B. -11˚C, W.B. -12˚C

3. Guaranteed voltage
360~440V, 50Hz

4. Above data based on indicated voltage
Indoor Unit 1 phase 230V 50Hz
Outdoor Unit 1 phase 230V 50Hz

5. Refer to the service manual of indoor unit for tha indoor unit's specifications.

Service Ref.					PUHZ-RP5VHA PUHZ-RP5VHA1		PUHZ-RP6VHA PUHZ-RP6VHA1	
Function					Cooling	Heating	Cooling	Heating
OUTDOOR UNIT	Power supply (phase, cycle, voltage)				Single, 50Hz, 220/230/240V			
		Running current		A	15.80	17.50	20.73	20.37
	External finish				Munsell 3Y 7.8/1.1			
	Refrigerant control				Linear Expansion Valve			
	Compressor				Hermetic			
		Model			ANV33FDAMT			
		Motor output		kW	2.4		2.9	
		Starter type			Line start			
		Protection devices			HP switch, LP switch, Discharge thermo			
	Crankcase heater			W	—			
	Heat exchanger				Plate fin coil			
	Fan	Fan(drive) × No.			Propeller fan × 2			
		Fan motor output		kW	0.060 +0.060			
		Airflow		m³/min(CFM)	100(3,530)			
	Defrost method				Reverse cycle			
	Noise level		Cooling	dB	50			
			Heating	dB	52			
	Dimensions		W	mm(in.)	950(37-3/8)			
			D	mm(in.)	330+30(13+1-3/16)			
			H	mm(in.)	1,350(53-1/8)			
	Weight			kg(lbs)	121(267)			
	Refrigerant				R410A			
		Charge		kg(lbs)	5.5(12.1)·····RP5, 6VHA 5.0(11.0)·····RP5, 6VHA			
		Oil (Model)		L	1.40(MEL56)			
REFRIGERANT PIPING	Pipe size O.D.		Liquid	mm(in.)	9.52(3/8)			
			Gas	mm(in.)	15.88(5/8)			
	Connection method		Indoor side		Flared			
			Outdoor side		Flared			
	Between the indoor & outdoor unit		Height difference		Max. 30m			
			Piping length		Max. 75m			

Notes1. Rating Conditions (ISO5151/13253 T1)
Cooling : Indoor : D.B. 27˚C(80˚F), W.B. 19˚C(66˚F) Outdoor : D.B. 35˚C(95˚F), W.B. 24˚C(75˚F)
Heating : Indoor : D.B. 20˚C(68˚F) Outdoor : D.B. 7˚C(45˚F), W.B. 6˚C(43˚F)
Refrigerant piping length (one way) : 5m (16ft)

2. Guaranteed operating range

		Indoor	Outdoor
Cooling	Upper limit	D.B. 35˚C, W.B. 22.5˚C	D.B. 46˚C
	Lower limit	D.B. 19˚C, W.B. 15˚C	D.B. -5˚C
Heating	Upper limit	D.B. 28˚C	D.B. 21˚C, W.B. 15˚C
	Lower limit	D.B. 17˚C	D.B. -11˚C, W.B. -12˚C

3. Guaranteed voltage
198~264V, 50Hz

4. Above data based on indicated voltage
Indoor Unit 1 phase 230V 50Hz
Outdoor Unit 1 phase 230V 50Hz

5. Refer to the service manual of indoor unit for tha indoor unit's specifications.

Service Ref.					PUHZ-RP4YHA		PUHZ-RP5YHA		PUHZ-RP6YHA	
Function					Cooling	Heating	Cooling	Heating	Cooling	Heating
OUTDOOR UNIT	Power supply (phase, cycle, voltage)				3phase, 50Hz, 400V					
		Running current		A	3.79	4.33	4.85	5.41	6.49	6.37
	External finish				Munsell 3Y 7.8/1.1					
	Refrigerant control				Linear Expansion Valve					
	Compressor				Hermetic					
		Model			ANV33FDBMT					
		Motor output		kW	1.9		2.4		2.9	
		Starter type			Line start					
		Protection devices			HP switch LP switch Discharge thermo					
	Crankcase heater			W	—					
	Heat exchanger				Plate fin coil					
	Fan	Fan(drive) × No.			Propeller fan × 2					
		Fan motor output		kW	0.060+0.060					
		Airflow		m³/min(CFM)	100(3,530)					
	Defrost method				Reverse cycle					
	Noise level		Cooling	dB	49		50			
			Heating	dB	51		52			
	Dimensions		W	mm(in.)	950(37-3/8)					
			D	mm(in.)	330+30(13+1-3/16)					
			H	mm(in.)	1,350(53-1/8)					
	Weight			kg(lbs)	135(298)					
	Refrigerant				R410A					
		Charge		kg(lbs)	5.0(11.0)					
		Oil (Model)		L	1.40(MEL56)					
REFRIGERANT PIPING	Pipe size O.D.		Liquid	mm(in.)	9.52(3/8)					
			Gas	mm(in.)	15.88(5/8)					
	Connection method		Indoor side		Flared					
			Outdoor side		Flared					
	Between the indoor & outdoor unit		Height difference		Max. 30m					
			Piping length		Max. 75m					

Notes1. Rating Conditions (ISO5151/13253 T1)
Cooling : Indoor : D.B. 27˚C(80˚F), W.B. 19˚C(66˚F) Outdoor : D.B. 35˚C(95˚F), W.B. 24˚C(75˚F)
Heating : Indoor : D.B. 20˚C(68˚F) Outdoor : D.B. 7˚C(45˚F), W.B. 6˚C(43˚F)
Refrigerant piping length (one way) : 5m (16ft)

2. Guaranteed operating range

		Indoor	Outdoor
Cooling	Upper limit	D.B. 35˚C, W.B. 22.5˚C	D.B. 46˚C
	Lower limit	D.B. 19˚C, W.B. 15˚C	D.B. -5˚C
Heating	Upper limit	D.B. 28˚C	D.B. 21˚C, W.B. 15˚C
	Lower limit	D.B. 17˚C	D.B. -11˚C, W.B. -12˚C

3. Guaranteed voltage
342~456V, 50Hz

4. Above data based on indicated voltage
Indoor Unit 1 phase 230V 50Hz
Outdoor Unit 3 phase 400V 50Hz

5. Refer to the service manual of indoor unit for tha indoor unit's specifications.

6 DATA

6-1. REFILLING REFRIGERANT CHARGE (R410A : kg)

Service Ref.	Piping length (one way)							Factory charged
	10m	20m	30m	40m	50m	60m	75m	
PUHZ-RP1.6VHA	2.1	2.3	2.5	2.7	2.9	—	—	2.5
PUHZ-RP2VHA	2.1	2.3	2.5	2.7	2.9	—	—	2.5
PUHZ-RP2.5VHA PUHZ-RP2.5VHA$_1$	3.1	3.3	3.5	4.1	4.7	—	—	3.5
PUHZ-RP3VHA PUHZ-RP3VHA$_1$	3.1	3.3	3.5	4.1	4.7	—	—	3.5
PUHZ-RP4VHA	5.1	5.3	5.5	6.1	6.7	7.3	7.9	5.5
PUHZ-RP5VHA	5.1	5.3	5.5	6.1	6.7	7.3	7.9	5.5
PUHZ-RP6VHA	5.1	5.3	5.5	6.1	6.7	7.3	7.9	5.5
PUHZ-RP4VHA$_1$ PUHZ-RP4YHA	4.6	4.8	5.0	5.6	6.2	6.8	7.4	5.0
PUHZ-RP5VHA$_1$ PUHZ-RP5YHA	4.6	4.8	5.0	5.6	6.2	6.8	7.4	5.0
PUHZ-RP6VHA$_1$ PUHZ-RP6YHA	4.6	4.8	5.0	5.6	6.2	6.8	7.4	5.0

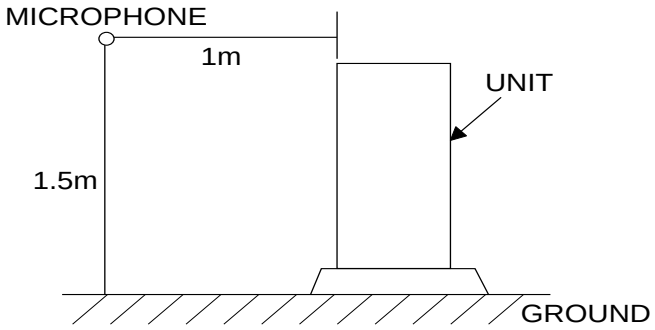
Longer pipe than 30m, additional charge is required.

6-2. COMPRESSOR TECHNICAL DATA

(at 20°C)

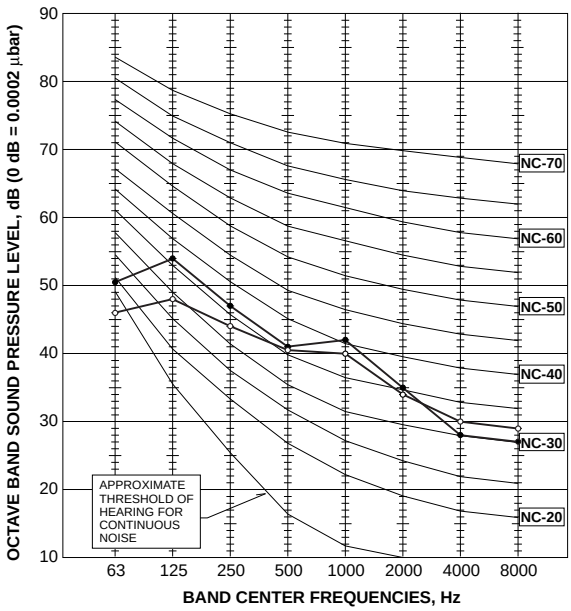
Unit		PUHZ-RP1.6,2VHA	PUHZ-RP2.5,3VHA	PUHZ-RP4,5,6VHA	PUHZ-RP4,5,6YHA
Compressor model		SNB130FLBH	TNB220FMBH	ANV33FDAMT	ANV33FDBMT
Winding Resistance (Ω)	U-V	0.300 ~ 0.340	0.865 ~ 0.895	0.266	1.064
	U-W	0.300 ~ 0.340	0.865 ~ 0.895	0.266	1.064
	W-V	0.300 ~ 0.340	0.865 ~ 0.895	0.266	1.064

6-3. NOISE CRITERION CURVES



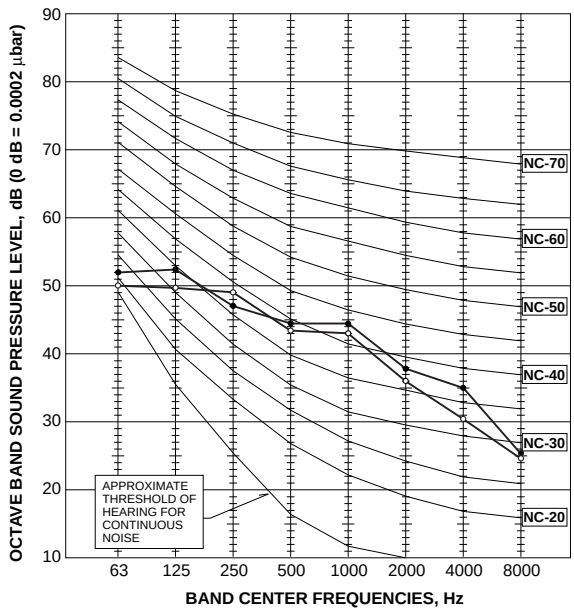
PUHZ-RP1.6VHA
PUHZ-RP2VHA

MODE	SPL(dB)	LINE
COOLING	44	○—○
HEATING	46	●—●



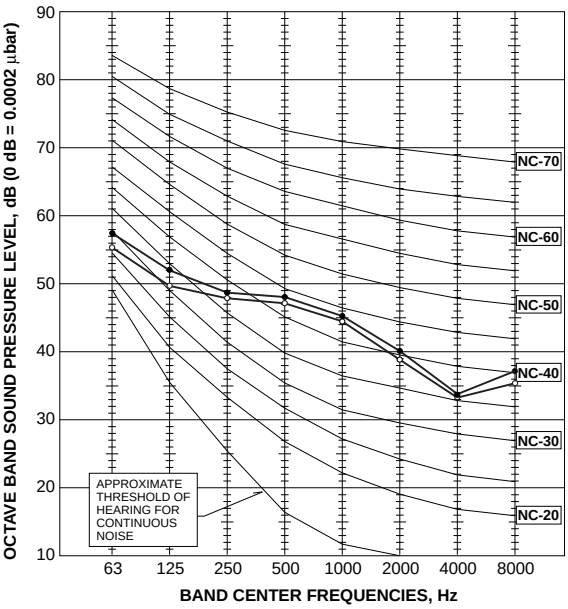
PUHZ-RP2.5VHA, VHA1
PUHZ-RP3VHA, VHA1

MODE	SPL(dB)	LINE
COOLING	47	○—○
HEATING	48	●—●



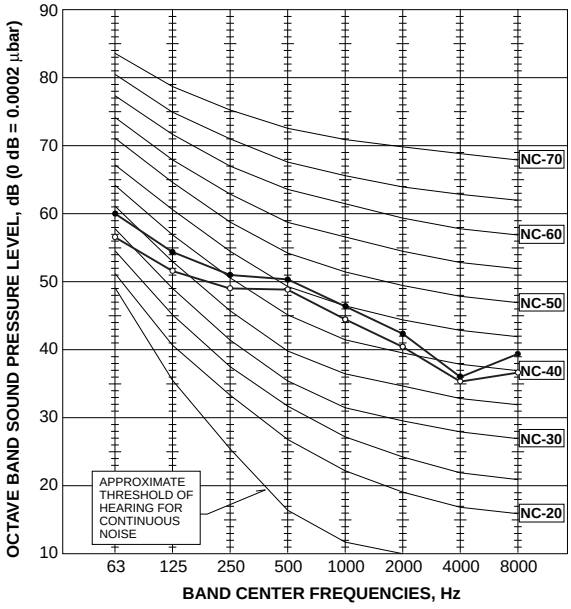
PUHZ-RP4VHA, VHA1
PUHZ-RP4YHA

MODE	SPL(dB)	LINE
COOLING	49	○—○
HEATING	51	●—●



PUHZ-RP5VHA, VHA1
PUHZ-RP6VHA, VHA1
PUHZ-RP5YHA
PUHZ-RP6YHA

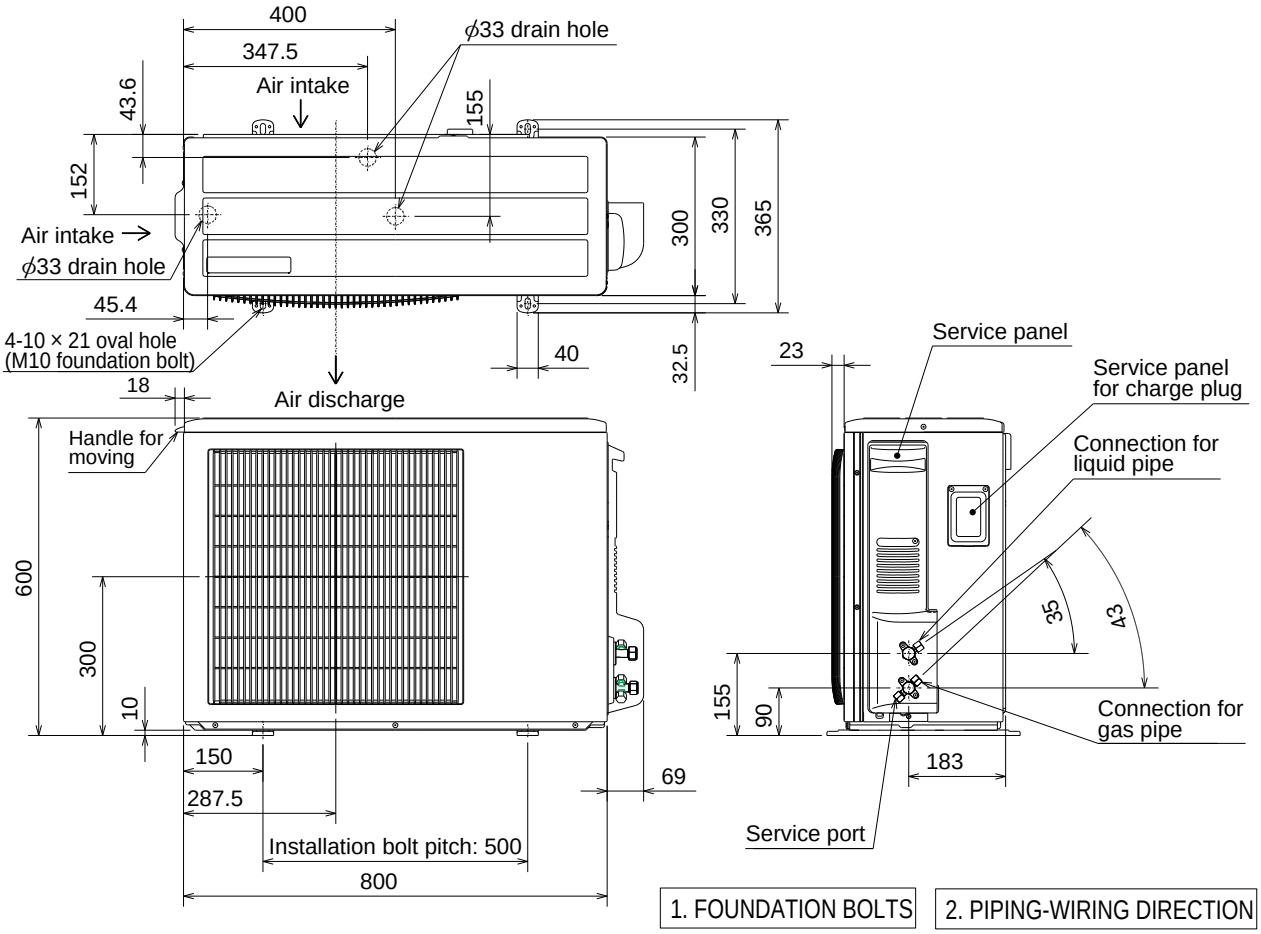
MODE	SPL(dB)	LINE
COOLING	50	○—○
HEATING	52	●—●



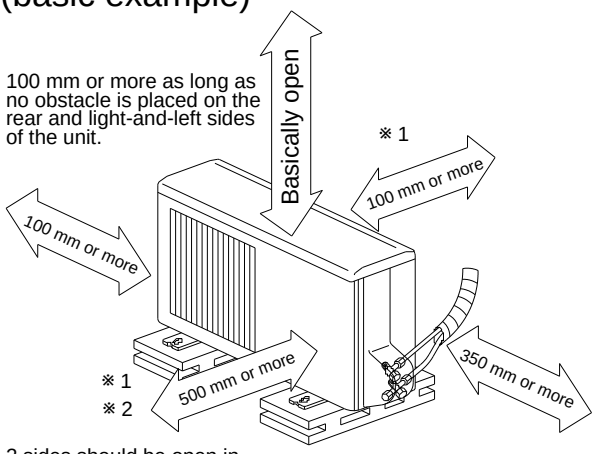
7 OUTLINES AND DIMENSIONS

PUHZ-RP1.6VHA
PUHZ-RP2VHA

Unit : mm



Free space around the outdoor unit (basic example)


100 mm or more as long as no obstacle is placed on the rear and light-and-left sides of the unit.
Basically open
※ 1
100 mm or more
100 mm or more
※ 1
※ 2
500 mm or more
350 mm or more

2 sides should be open in the right, left and rear side.

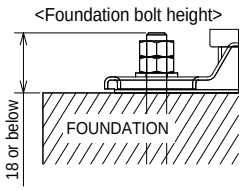
Minimum installation space for outdoor unit

※ 1 In the place where short cycle tends to occur, cooling and heating capacity and power consumption might get lowered 10%. Air outlet guide (optional PAC-SG58SG) will help them improve.

※ 2 If air discharges to the wall, the surface might get stained.

1. FOUNDATION BOLTS

Please secure the unit firmly with 4 foundation (M10) bolts. (Bolts, washer and nut must be purchased locally.)



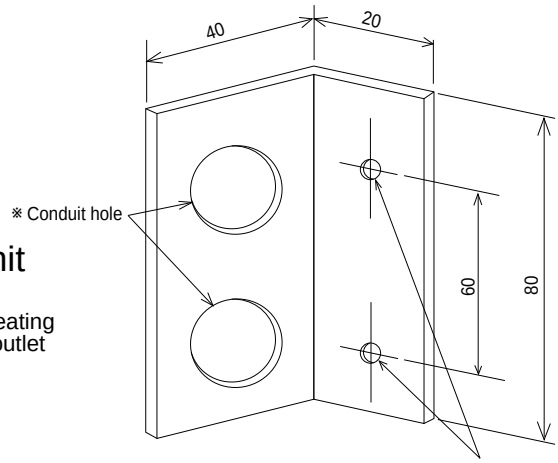
2. PIPING-WIRING DIRECTION

Piping and wiring connection can be made from the rear direction only.

3. ATTACHING THE CONDUIT

In order to attach the conduit, it is necessary to fix the metal plate with 2 screws to the back panel. Procure the metal plate and make screw holes locally. It is recommended to use the metal plate shown below. Align the metal plate to the marks on the unit and attach it.

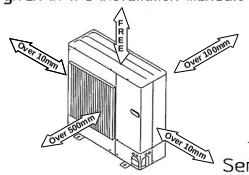
※ The position and the size of conduit hole depend on the conduit to be used.



Holes for metal plate fixing screw
※ The size of hole depends on the screw to be used.

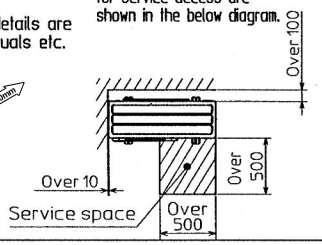
1 FREE SPACE (Around the unit)

The diagram below shows a basic example.
Explanations of particular details are given in the installation manuals etc.



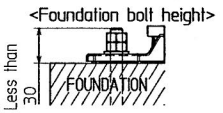
2 SERVICE SPACE

Dimensions of space needed for service access are shown in the below diagram.



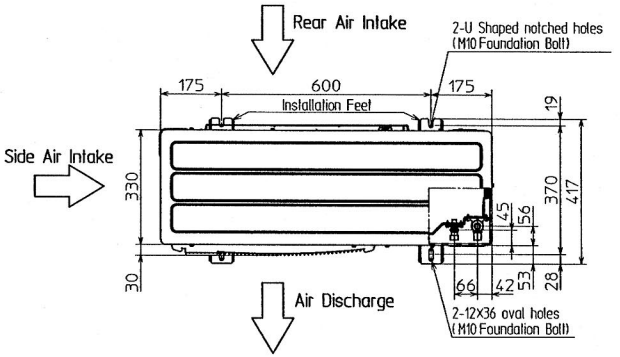
3 FOUNDATION BOLTS

Please secure the unit firmly with 4 foundation (M10) bolts. (Bolts and washers must be purchased locally.)



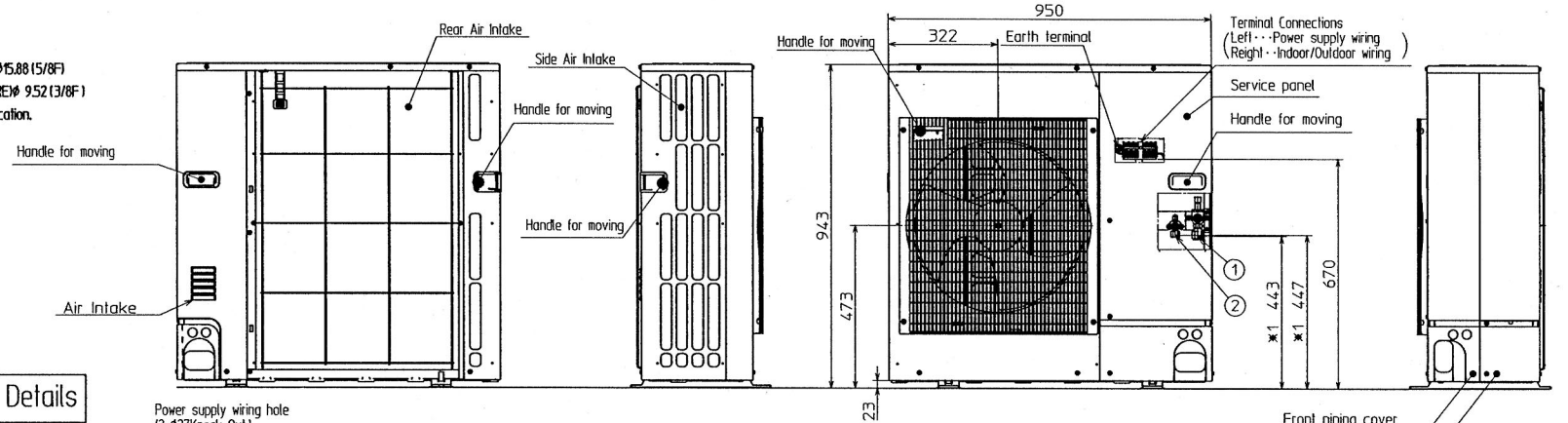
4 PIPING-WIRING DIRECTIONS

Piping and wiring connections can be made from 4 directions: FRONT,Right,Rear and Below.

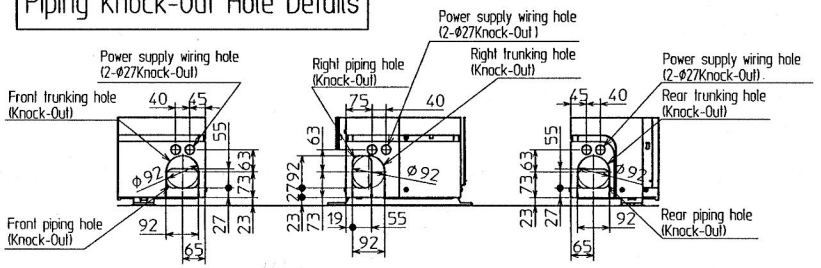


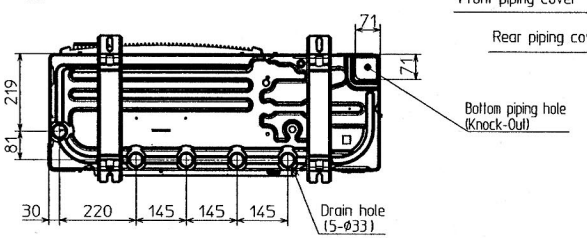
Example of Notes

① ··Refrigerant GAS pipe connection (FLARE)Ø15.88 (5/8F)
② ··Refrigerant LIQUID pipe connection (FLARE)Ø 9.52 (3/8F)
※1 ···Indication of STOP VALVE connection location.



Piping Knock-Out Hole Details


Power supply wiring hole (2-Ø27Knock-Out)
Front trunking hole (Knock-Out)
Front piping hole (Knock-Out)
Right piping hole (Knock-Out)
Power supply wiring hole (2-Ø27Knock-Out)
Right trunking hole (Knock-Out)
Power supply wiring hole (2-Ø27Knock-Out)
Rear trunking hole (Knock-Out)
Rear piping hole (Knock-Out)



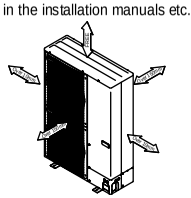
Unit : mm

PUHZ-RP4VHA
PUHZ-RP4VHA$_1$
PUHZ-RP5VHA
PUHZ-RP5VHA$_1$
PUHZ-RP6VHA
PUHZ-RP6VHA$_1$

PUHZ-RP4YHA
PUHZ-RP5YHA
PUHZ-RP6YHA

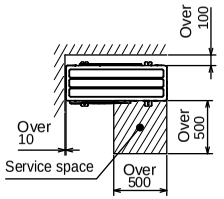
1 FREE SPACE (Around the unit)

The diagram below shows a basic example.
Explantion of particular details are given in the installation manuals etc.



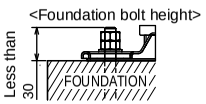
2 SERVICE SPACE

Dimensions of space needed for service access are shown in the below diagram.



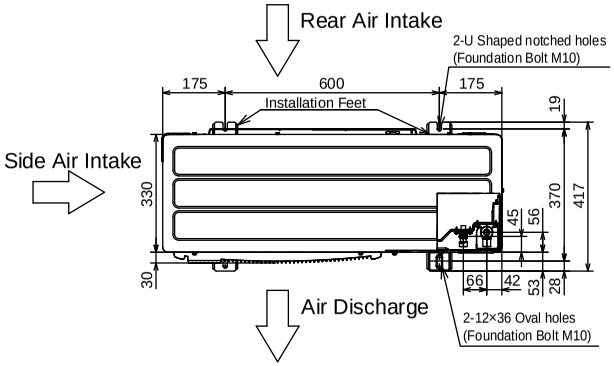
3 FOUNDATION BOLTS

Please secure the unit firmly with 4 foundation (M10) bolts.
(Bolts and washers must be purchased locally.)



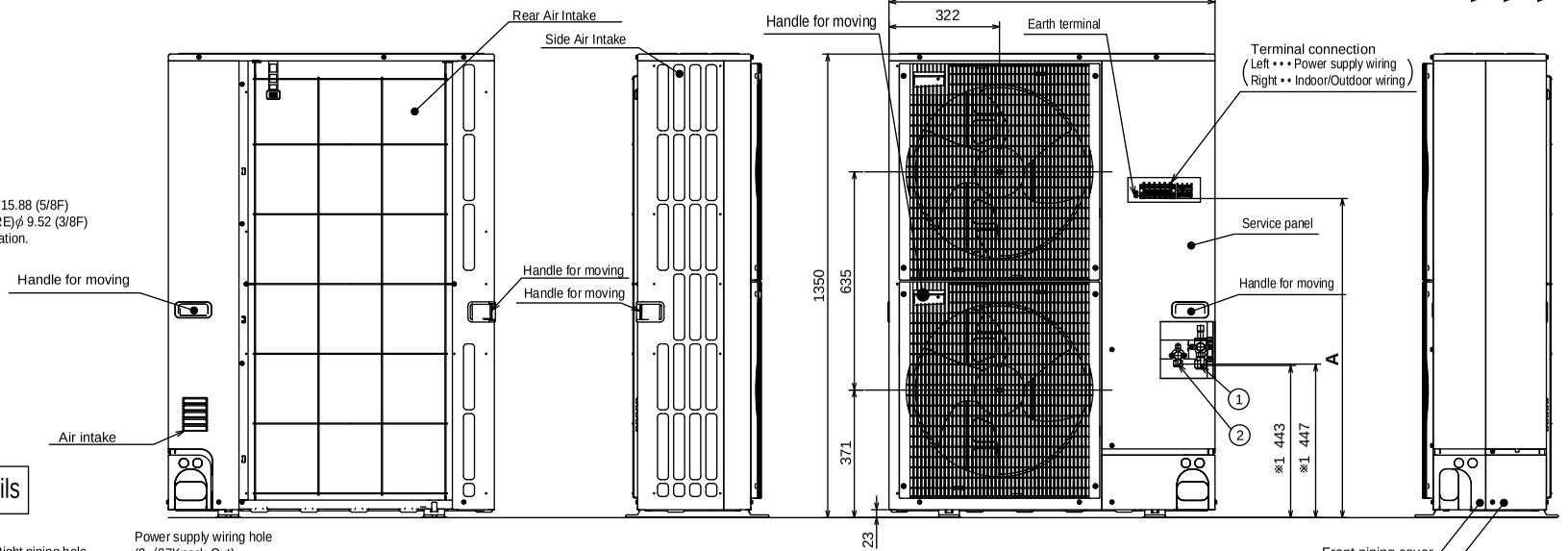
4 PIPING-WIRING DIRECTIONS

Piping and wiring connections can be made from 4 directions: FRONT,Right,Rear and Below.

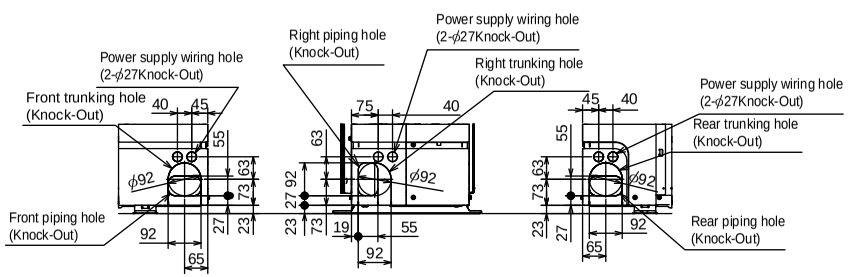


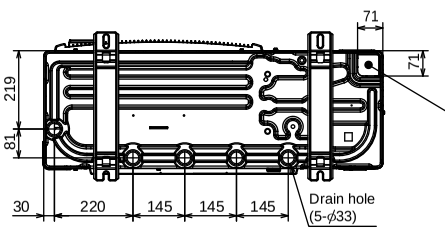
Example of Notes

①・・・Refrigerant GAS pipe connction (FLARE)ϕ15.88 (5/8F)
②・・・Refrigerant LIQUID pipe connection (FLARE)ϕ 9.52 (3/8F)
※1・・・Indication of STOP VALVE connection location.



Piping Knock-Out Hole Details


Power supply wiring hole (2-ϕ27Knock-Out)
Front trunking hole (Knock-Out)
Front piping hole (Knock-Out)
Right piping hole (Knock-Out)
Power supply wiring hole (2-ϕ27Knock-Out)
Right trunking hole (Knock-Out)
Power supply wiring hole (2-ϕ27Knock-Out)
Rear trunking hole (Knock-Out)
Rear piping hole (Knock-Out)

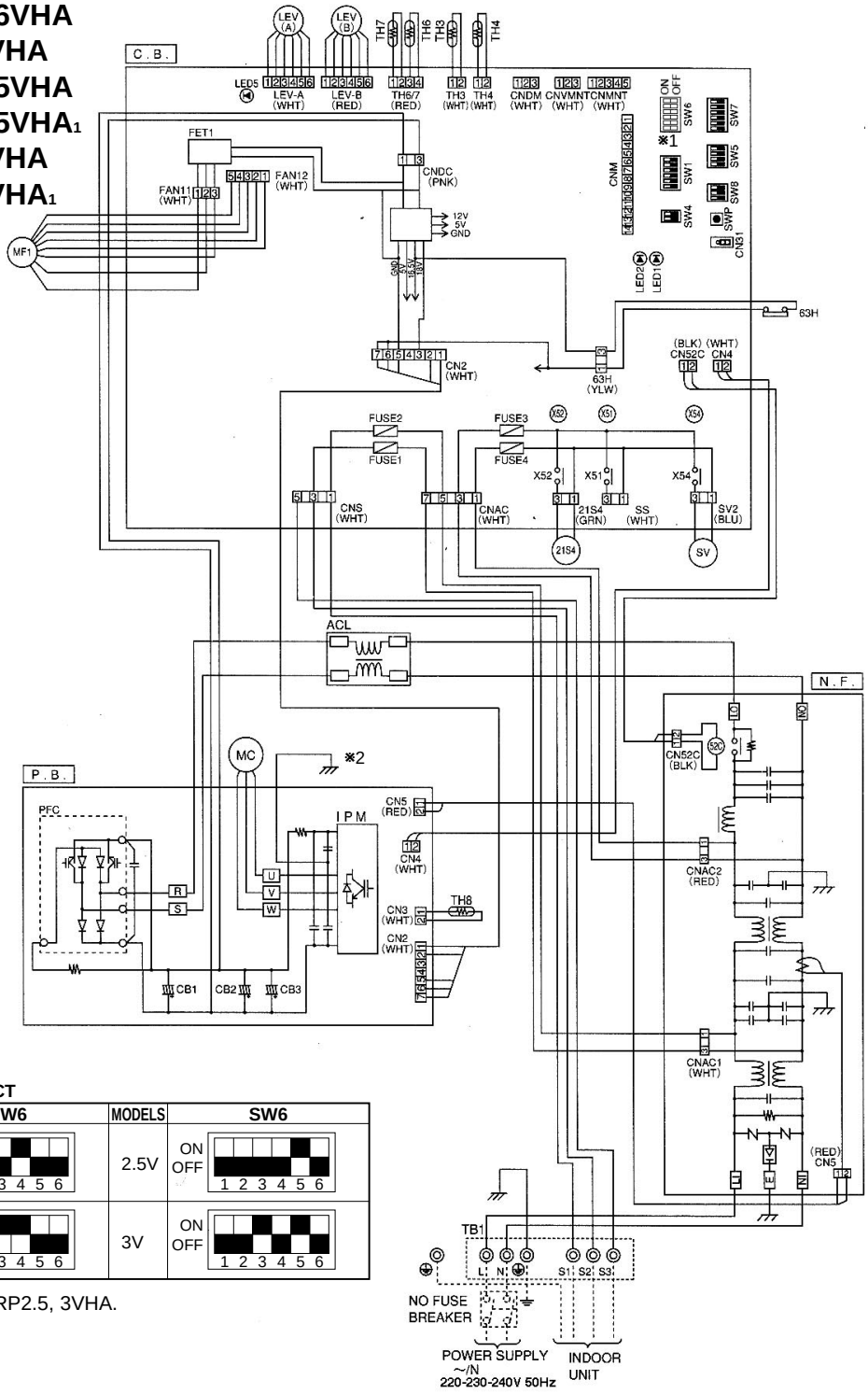


	A
RP·VHA RP·VHA$_1$	1,076
RP·YHA	930

Unit : mm

8 WIRING DIAGRAM

PUHZ-RP1.6VHA
PUHZ-RP2VHA
PUHZ-RP2.5VHA
PUHZ-RP2.5VHA$_1$
PUHZ-RP3VHA
PUHZ-RP3VHA$_1$



※1 MODEL SELECT

MODELS	SW6	MODELS	SW6
1.6V	ON OFF 1 2 3 4 5 6	2.5V	ON OFF 1 2 3 4 5 6
2V	ON OFF 1 2 3 4 5 6	3V	ON OFF 1 2 3 4 5 6

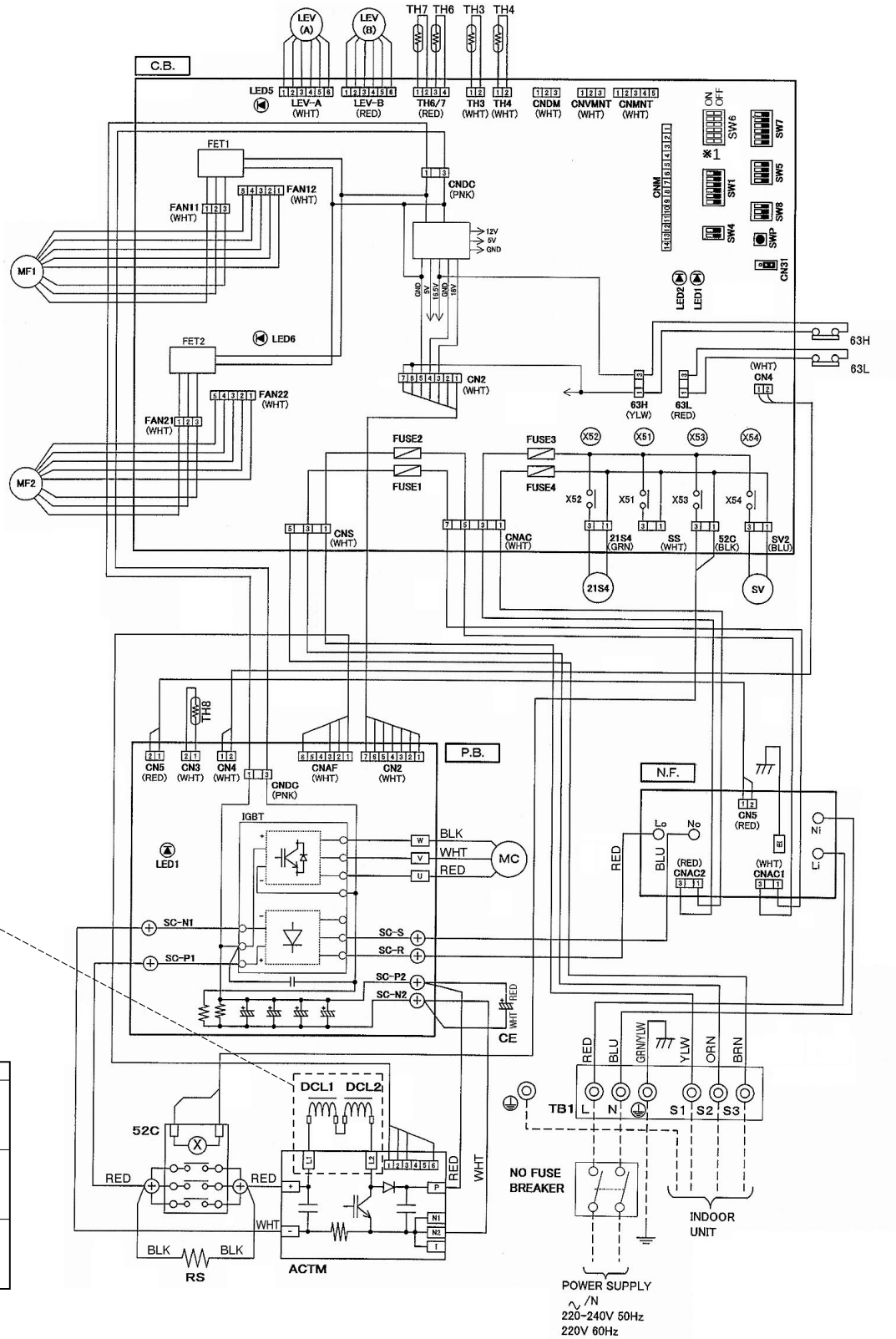
※2 Only PUHZ-RP2.5, 3VHA.

SYMBOL	NAME
TB1	Terminal Block 〈Power Supply, Indoor/Outdoor〉
MC	Motor for Compressor
MF1	Fan Motors
21S4	Solenoid Valve (Four-Way Valve)
63H	High Pressure Switch
SV	Solenoid Valve (Bypass Valve)
TH3	Thermistor 〈Outdoor Pipe〉
TH4	Thermistor 〈Discharge〉
TH6	Thermistor 〈Outdoor 2-Phase Pipe〉
TH7	Thermistor 〈Outdoor〉
TH8	Thermistor 〈Heat sink〉
LEV(A),LEV(B)	Linear Expansion Valve
ACL	Reactors
P.B.	Power Circuit Board
R/S	Connection Terminal 〈L/N-Phase〉
U/V/W	Connection Terminal 〈U/V/W-Phase〉
CN2~5	Connector
PFC	Converter
IPM	Inverter
CB1~CB3	Main Smoothing Capacitor

SYMBOL	NAME
N.F.	Noise Filter Circuit Board
LI/LO	Connection Terminal 〈L-Phase〉
NI/NO	Connection Terminal 〈N-Phase〉
E	Connection Terminal 〈Ground〉
CNAC1/2	Connector
CN5	Connector
CN52C	Connector
52C	52C Relay
C.B.	Controller Circuit Board
SW1	Switch 〈Forced Defrost, Defect History Record Reset, Refrigerant Address〉
SW4	Switch 〈Test Operation〉
SW5	Switch 〈Function Switch〉
SW6	Switch 〈Model Select〉
SW7	Switch 〈Function Setup〉
SW8	Switch
LED1,LED2	Light Emitting Diodes 〈Operation Inspection Indicators〉
LED5	Light Emitting Diodes 〈MF1 Operation Status Indicators〉

SYMBOL	NAME
FUSE1~4	Fuse 〈6.3 A〉
SWP	Switch 〈Pump Down〉
CN31	Connector 〈Emergency Operation〉
CNAC	Connector
CNDC	Connector
CNS	Connector
FAN11	Connector
FAN12	Connector
SS	Connector 〈Connection for Option〉
SV2	Connector
CNM	Connector 〈A-Control Service Inspection Kit〉
CNMNT	Connector 〈Connected to Optional M-NET Adapter Board〉
CNVMNT	Connector 〈Connected to Optional M-NET Adapter Board〉
CNDM	Connector 〈Connected for Option (Contact Input)〉
X51,X52,X54	Reray
FET1	MF1 Drive Element

PUHZ-RP4VHA
PUHZ-RP4VHA$_1$
PUHZ-RP5VHA
PUHZ-RP5VHA$_1$
PUHZ-RP6VHA
PUHZ-RP6VHA$_1$



Only PUHZ-RP4VHA$_1$
PUHZ-RP5VHA$_1$
PUHZ-RP6VHA$_1$

※1 MODEL SELECT

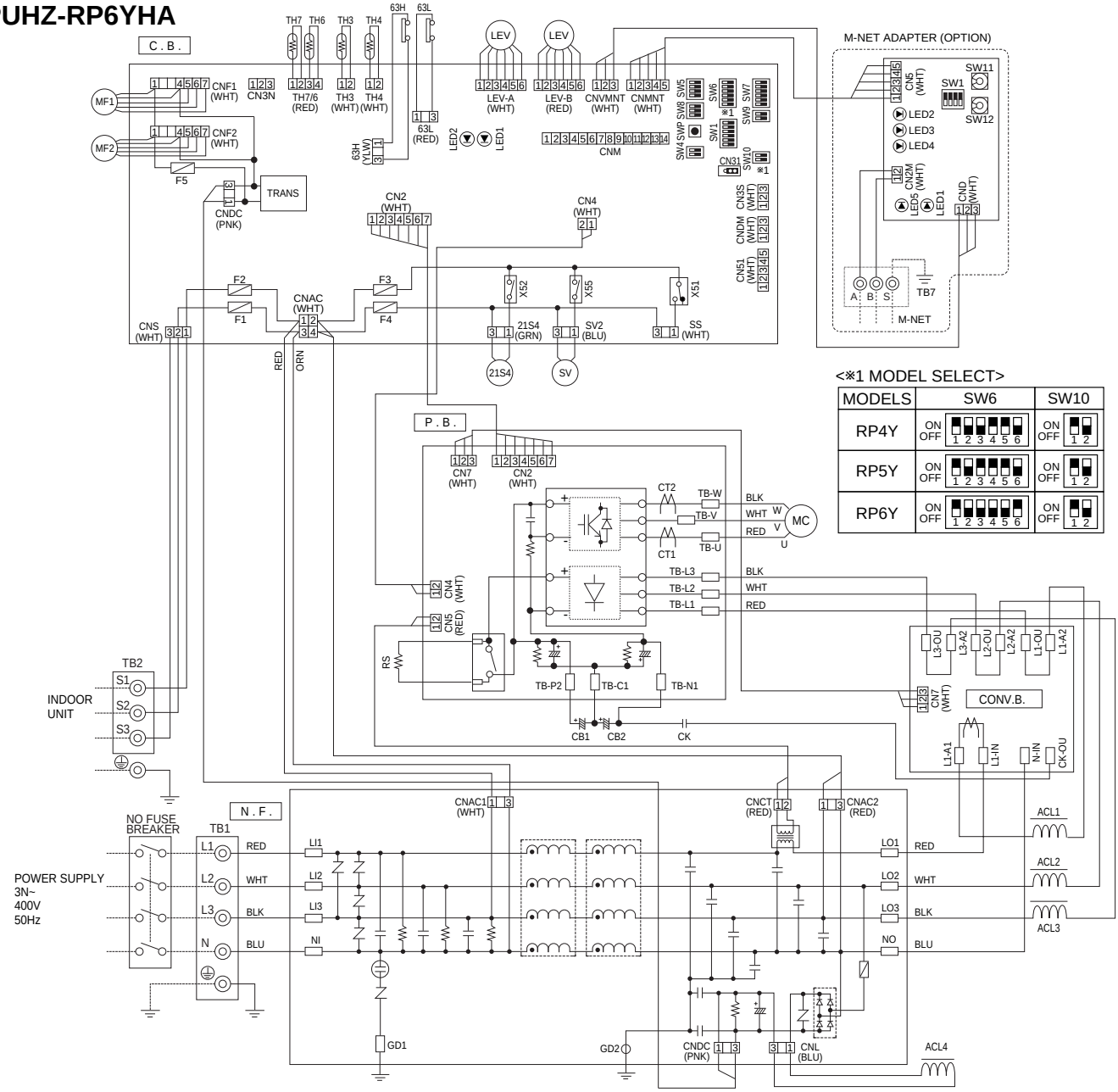
MODELS	SW6
4V	ON / OFF 1 2 3 4 5 6
5V	ON / OFF 1 2 3 4 5 6
6V	ON / OFF 1 2 3 4 5 6

SYMBOL	NAME
TB1	Terminal Block 〈Power Supply, Indoor/Outdoor〉
MC	Motor for Compressor
MF1,MF2	Fan Motors
21S4	Solenoid Valve (Four-Way Valve)
SV	Solenoid Valve (Bypass Valve)
63H	High Pressure Switch
63L	Low Pressure Switch
TH3	Thermistor 〈Outdoor Pipe〉
TH4	Thermistor 〈Discharge〉
TH6	Thermistor 〈Outdoor 2-Phase Pipe〉
TH7	Thermistor 〈Outdoor〉
TH8	Thermistor 〈Heat sink〉
LEV(A),LEV(B)	Linear Expansion Valve
DCL1, DCL2	Reactors (RP4-6VHA)
DCL	Reactor (RP4-6VHA$_1$)
52C	52C Relay
RS	Rush Current Protect Resistor
ACTM	Active Filter Module
CE	Main Smoothing Capacitor
P.B.	Power Circuit Board
U/V/W	Connection Terminal 〈U/V/W-Phase〉

SYMBOL	NAME
SC-R/S	Screw Type Terminal 〈L/N-Phase〉
SC-P1, P2	Screw Type Terminal 〈DC Voltage〉
SC-N1, N2	Screw Type Terminal 〈DC Voltage〉
CN2~5	Connector
CNDC	Connector
CNAF	Connector
IGBT	Converter, Inverter
LED1	Light Emitting Diodes 〈Inverter Control Status〉
N.F.	Noise Filter Circuit Board
LI/LO	Connection Lead 〈L-Phase〉
NI/NO	Connection Lead 〈N-Phase〉
EI	Connection Terminal 〈Ground〉
CNAC1/2	Connector
CN5	Connector
C.B.	Controller Circuit Board
FUSE1~4	Fuse 〈6.3 A〉
SW1	Switch 〈Forced Defrost, Defect History Record Reset, Refrigerant Address〉
SW4	Switch 〈Test Operation〉
SW5	Switch 〈Function Switch〉
SW6	Switch 〈Model Select〉

SYMBOL	NAME
SW7	Switch 〈Function Setup〉
SW8	Switch
SWP	Switch 〈Pump Down〉
CN31	Connector 〈Emergency Operation〉
LED1,LED2	Light Emitting Diodes 〈Operation Inspection Indicators〉
LED5/6	Light Emitting Diodes 〈MF1/MF2 Operation Status Indicators〉
CNAC	Connector
CNDC	Connector
CNS	Connector
FAN11	Connector
FAN12	Connector
FAN21	Connector
FAN22	Connector
SS	Connector 〈Connection for Option〉
SV2	Connector
CNM	Connector 〈A-Control Service Inspection Kit〉
CNMNT	Connector 〈Connected to Optional M-NET Adapter Board〉
CNVMNT	Connector 〈Connected to Optional M-NET Adapter Board〉
CNDM	Connector 〈Connected for Option (Contact Input)〉

PUHZ-RP4YHA
PUHZ-RP5YHA
PUHZ-RP6YHA


C.B.
M-NET ADAPTER (OPTION)
TH7 TH6 TH3 TH4 63H 63L
LEV LEV
MF1 MF2 F5 TRANS CNDC (PNK)
CNF1 (WHT) CNF2 (WHT) CN3N
TH7/6 (RED) TH3 (WHT) TH4 (WHT) 63L (RED) 63H (YLW)
LED2 LED1
LEV-A (WHT) LEV-B (RED) CNVMNT (WHT) CNMNT (WHT)
SW5 SW6 SW7 SW8 SW9 SW4 SWP SW1 SW10 CN31 ※1
CNM
CN2 (WHT) CN4 (WHT)
CN3S (WHT) CNDM (WHT) CN51 (WHT)
F1 F2 F3 F4 CNAC (WHT) CNS (WHT)
X52 X55 X51
21S4 (GRN) SV2 (BLU) SS (WHT)
21S4 SV
RED ORN
SW11 SW1 SW12 LED2 LED3 LED4 CN5 (WHT) CN2M (WHT) LED5 LED1 CND (WHT)
A B S TB7 M-NET
P.B.
CN7 (WHT) CN2 (WHT) CN4 (WHT) CN5 (RED)
CT2 CT1 TB-W TB-V TB-U MC
BLK WHT RED W V U
TB-L3 TB-L2 TB-L1
RS TB-P2 TB-C1 TB-N1
CB1 CB2 CK
L3-OU L3-A2 L2-OU L2-A2 L1-OU L1-A2
CONV.B. CN7 (WHT) L1-A1 L1-IN N-IN CK-OU
TB2 S1 S2 S3 INDOOR UNIT
NO FUSE BREAKER
N.F. TB1 L1 L2 L3 N
POWER SUPPLY 3N~ 400V 50Hz
LI1 LI2 LI3 NI
CNAC1 (WHT) CNCT (RED) CNAC2 (RED)
LO1 LO2 LO3 NO
ACL1 ACL2 ACL3 ACL4
GD1 GD2
CNDC (PNK) CNL (BLU)

<※1 MODEL SELECT>

MODELS	SW6	SW10
RP4Y	ON OFF 1 2 3 4 5 6	ON OFF 1 2
RP5Y	ON OFF 1 2 3 4 5 6	ON OFF 1 2
RP6Y	ON OFF 1 2 3 4 5 6	ON OFF 1 2

SYMBOL	NAME
TB1	Terminal Block <Power Supply >
TB2	Terminal Block <Indoor/Outdoor >
MC	Motor for Compressor
MF1,MF2	Fan Motor
21S4	Solenoid Valve (Four-Way Valve)
SV	Solenoid Valve (Bypass Valve)
63H	High Pressure Switch
63L	Low Pressure Switch
TH3	Thermistor <Outdoor Pipe>
TH4	Thermistor <Discharge>
TH6	Thermistor <Outdoor 2-Phase Pipe>
TH7	Thermistor <Outdoor>
LEV	Linear Expansion Valve
ACL1~ACL4	Reactor
CB1,CB2	Main Smoothing Capacitor
CK	Capacitor
RS	Rush Current Protect Resistor
P.B.	Power Circuit Board
TB-U/V/W	Connection Terminal <U/V/W-Phase>
TB-L1/L2/L3	Connection Terminal <L1/L2/L3-Power Supply>
TB-P2	Connection Terminal
TB-C1	Connection Terminal
TB-N1	Connection Terminal
CT1, CT2	Current Trans
CN2	Connector
CN4	Connector
CN5	Connector
CN7	Connector

SYMBOL	NAME
N.F.	Noise Filter Circuit Board
LI1/LI2/LI3/NI	Connection Terminal <L1/L2/L3/N-Power Supply>
LO1/LO2/LO3/NO	Connection Terminal <L1/L2/L3/N-Power Supply>
CNAC1	Connector
CNAC2	Connector
CNCT	Connector
CNDC	Connector
CNL	Connector
GD1	Connection Terminal <Ground>
CONV.B	Converter Circuit Board
L1-A1/IN	Connection Terminal <L1-Power Supply>
L1-A2/OU	Connection Terminal <L1-Power Supply>
L2-A2/OU	Connection Terminal <L2-Power Supply>
L3-A2/OU	Connection Terminal <L3-Power Supply>
N-IN	Connector
CK-OU	Connector
CN7	Connector
C.B.	Controller Circuit Board
F1,F2	FUSE <6.3 A>
F3,F4	FUSE <6.3 A>
SW1	Switch <Forced Defrost, Defect History Record Reset, Refrigerant Adress>
SW4	Switch <Test Operation>
SW5	Switch <Function Switch>
SW6	Switch <Model Select>
SW7	Switch <Function Switch>
SW8	Switch <Function Switch>
SW9	Switch <Function Switch>

SYMBOL	NAME
SW10	Switch <Model Select>
SWP	Switch <Pump Down>
CN31	Connector <Emergency Operation>
CNAC	Connector
CNS	Connector
CNDC	Connector
21S4	Connector <Four-Way Valve>
SV2	Connector <Bypass Valve>
SS	Connector <Connection for Option>
CN2	Connector
CN4	Connector
LEV-A/LEV-B	Connector <LEV>
63H	Connector <High Pressure Switch>
63L	Connector <Low Pressure Switch>
TH3	Connector <Thermistor>
TH4	Connector <Thermistor>
TH7/6	Connector <Thermistor>
CNF1/CNF2	Connector <Fan Motor Operation>
LED1/LED2	LED <Operatiion Inspection Indicators>
CNM	Connector <A-Control Service Inspection Kit>
CNVMNT	Connector <Connect to Optional M-NET Adapter Board>
CNMNT	Connector <Connect to Optional M-NET Adapter Board>
CN3S	Connector < Connection for Option>
CNDM	Connector < Connection for Option>
CN51	Connector < Connection for Option>

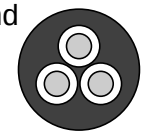
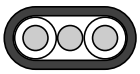
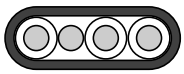
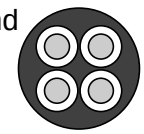
M-NET ADAPTER

TB7	Terminal Block <M-NET connection >	SW12	Switch <Address setting. 2nd digit >
CN5	Connector <Transmission>	LED1	LED <Power Supply: DC5V>
CND	Connector <Power Supply>	LED2	LED <Connection to Outdoor Unit>
CN2M	Connector <M-NET communication>	LED3	LED <Transmission: Sending>
SW1	Switch <Status of communication>	LED4	LED <Transmission: Receiving>
SW11	Switch <Address setting: 1st digit>	LED5	LED <Power Supply: DC12V>

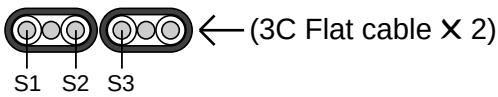
9 WIRING SPECIFICATIONS

Indoor unit – Outdoor unit wiring for PUHZ-RP1.6-6VHA and PUHZ-RP1.6-6VHA$_1$

The cable shall not be lighter than design 245 IEC or 227 IEC.
The cable length may vary depending on the condition of installation, humidity or materials, etc.

Cross section of cable	Wire size (mm^2)	Number of wires	Polarity	L(m) ✻5
Round 	2.5	3	Clockwise : S1-S2-S3	(30) ✻1
Flat 	2.5	3	Not applicable (Because center wire has no cover finish)	Not applicable ✻2
Flat 	1.5	4	From left to right : S1-Open-S2-S3	(18) ✻3
Round 	2.5	4	Clockwise : S1-S2-S3-Open Connect S1 and S3 to the opposite angle	30 ✻4

✻1 : In case that cable with stripe of yellow and green is available.
✻2 : In the flat cables are connected as this picture, they can be used up to 30m.



✻3 : In case of regular polarity connection (S1-S2-S3), wire size is 1.5mm^2.
✻4 : In case of regular polarity connection (S1-S2-S3).
✻5 : Mentioned cable length is just a reference value.
It may be different depending on the condition of installation, humidity or materials, etc.

Be sure to connect the indoor-outdoor connecting cables directly to the units (no intermediate connections).
Intermediate connections can lead to communication errors if water enters the cables and causes insufficient insulation to ground or a poor electrical contact at the intermediate connection point.
(If an intermediate connection is necessary, be sure to take measures to prevent water from entering the cables.)

Indoor unit – Outdoor unit wiring for PUHZ-RP4, 5, 6YHA

The cable shall not be lighter than design 245 IEC or 227 IEC.

For 4, 5, 6Y application, use shield wire. (**For EMC DIRECTIVE**)
The shield part must be grounded with the indoor unit or the outdoor unit, not with both.

The cable length may depending on the condition of installation, humidity or materials, etc.

	Wire No. × Size (㎟)		
	Max. 45m	Max. 50m	Max. 80m
Indoor unit-Outdoor unit	3 × 1.5 (polar)	3 × 2.5 (polar)	3 × 2.5 (polar) and S3 separated
Indoor unit-Outdoor unit earth	1 × Min. 1.5	1 × Min. 2.5	1 × Min. 2.5

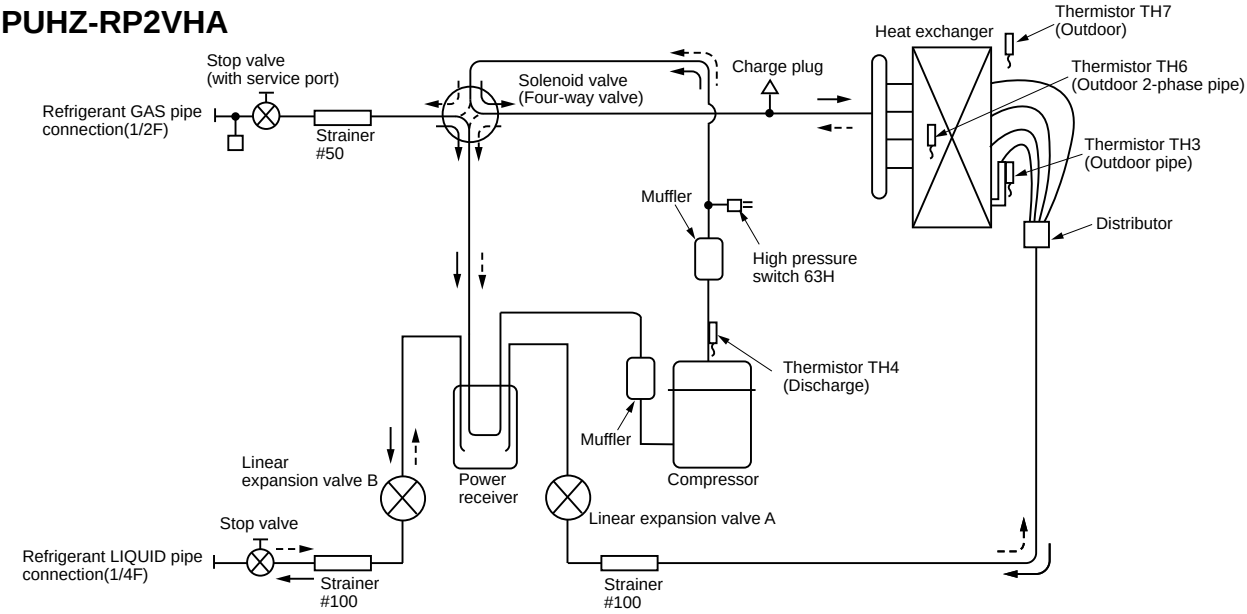
If 1.5㎟ used, Max. 45m.
If 2.5㎟ used, Max. 50m.
If 2.5㎟ used and S3 separated, Max. 80m.

When the shield line is not used, several dB is exceeded with 30 ~ 40 MHz .
(There is a possibility to be used by the wireless for the ship etc. though it is not used for radio and TV.)

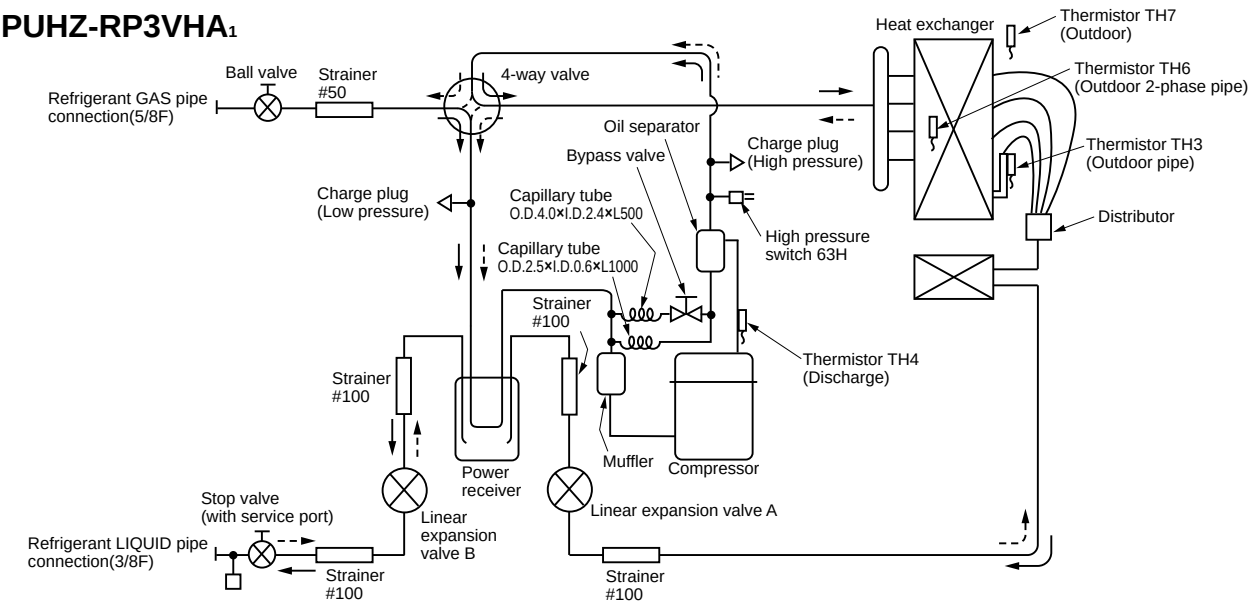
Be sure to connect the indoor-outdoor connecting cables directly to the units (no intermediate connections).
Intermediate connections can lead to communication errors if water enters the cables and causes insufficient insulation to ground or a poor electrical contact at the intermediate connection point.
(If an intermediate connection is necessary, be sure to take measures to prevent water from entering the cables.)

10 REFRIGERANT SYSTEM DIAGRAM

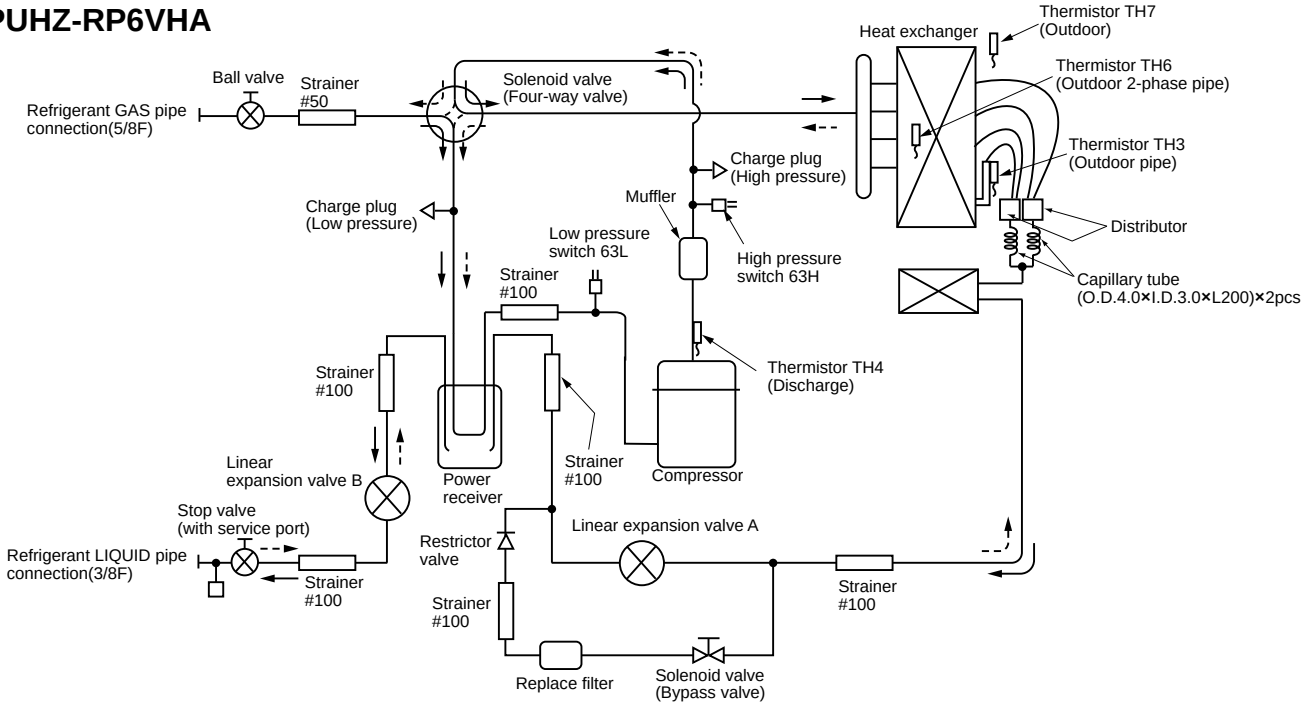
PUHZ-RP1.6VHA
PUHZ-RP2VHA



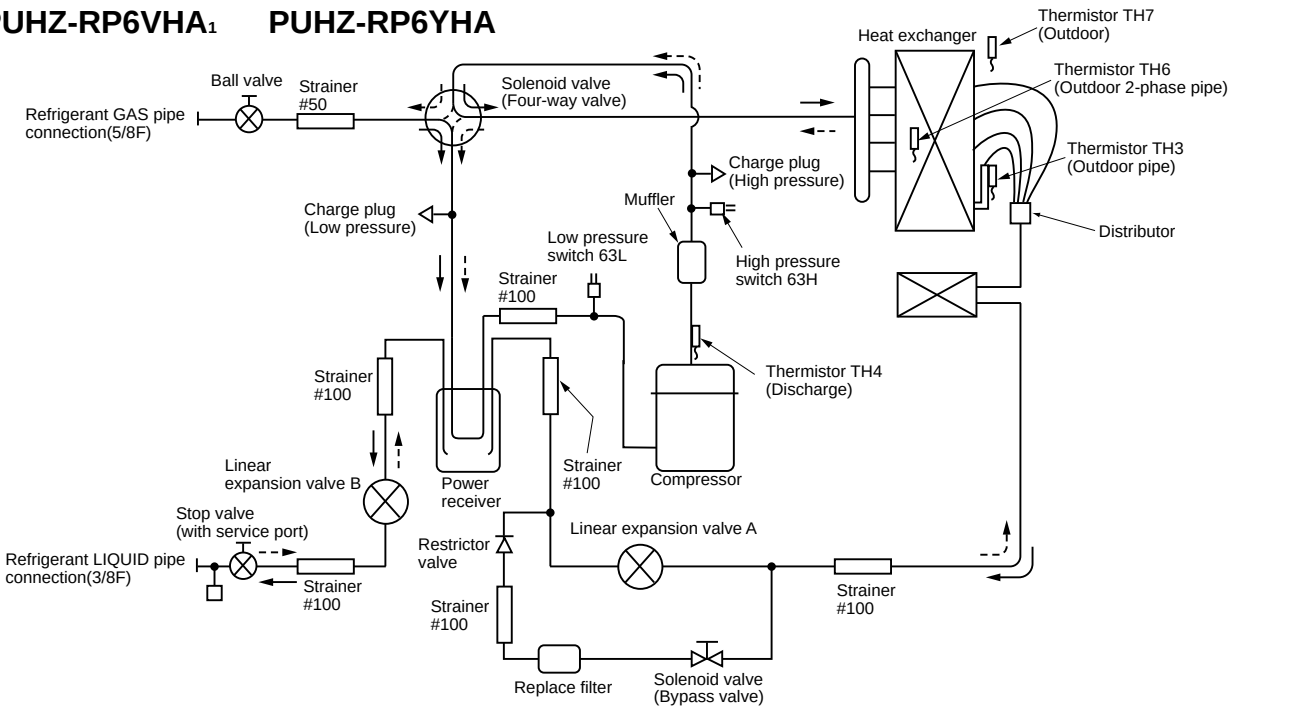
PUHZ-RP2.5VHA
PUHZ-RP2.5VHA$_1$
PUHZ-RP3VHA
PUHZ-RP3VHA$_1$



PUHZ-RP4VHA
PUHZ-RP5VHA
PUHZ-RP6VHA



PUHZ-RP4VHA$_1$ PUHZ-RP4YHA
PUHZ-RP5VHA$_1$ PUHZ-RP5YHA
PUHZ-RP6VHA$_1$ PUHZ-RP6YHA



Applicable extension pipe for each model

The height difference between indoor and outdoor unit should be kept within 30 m for all models.

(1) 1:1 system

(a) Maximum pipe length

<Table 1> Pipe length for 1:1 system

Liquid pipe (mm)	OD	ϕ6.35			ϕ9.52			ϕ12.7	
	Thick-ness	t0.8			t0.8			t0.8	
Gas pipe (mm)	OD	ϕ9.52	ϕ12.7	ϕ15.88	ϕ12.7	ϕ15.88	ϕ19.05	ϕ15.88	ϕ19.05
	Thick-ness	t0.8	t0.8	t1.0	t0.8	t1.0	t1.0	t1.0	t1.0
RP1.6		□30m	◎50m	○30m	△30m	△30m (*1)	×	×	×
RP2		□10m	◎50m	○30m	△30m	△30m (*1)	×	×	×
RP2.5		×	□10m	○10m	□30m	◎50m	×	△30m	×
RP3		×	□10m	○10m	□30m	◎50m	×	△30m	×
RP4		×	×	×	×	◎75m (*2)	○50m (*1)	△50m	△50m (*1)
RP5		×	×	×	×	◎75m (*2)	○50m (*1)	△50m	△50m (*1)
RP6		×	×	×	×	◎75m (*2)	○50m (*1)	△50m	△50m (*1)

*1: Set DIP SW8-1 on outdoor unit controller board to ON.
*2: The maximum length is 50 m in case of using existing pipes.

[Marks in the table above]

◎ : Standard piping
△ : It can be used, however, additional refrigerant charge is required when the pipe length exceeds 20m. ➡ Refer to <table 4>.
× : It cannot be used.
○ : It can be used.
□ : It can be used, however, the capacity is lowered. ➡ Refer to (c) **Capacity correction.**

(b) Adjusting the amount of refrigerant

- Additional refrigerant charge is not necessary for the pipe length up to 30 m. When the pipe length exceeds 30 m or service (refrigerant replacement) is performed, charge proper amount of refrigerant for each pipe length referring to table below. Use refrigerant R410A. Use charge hose exclusive for R410A.
- When charging additional refrigerant, charge the refrigerant from low-pressure side of the port valve using a safety charger.
- Make sure that air purge for this unit at refrigerant replacement is performed from both high-pressure check valve and service port. If air purge is performed only from one of them, air in not purged enough.
- When replacing refrigerant, charge the refrigerant from service port. When charged refrigerant is less than specified amount, charge the refrigerant again from low pressure side of the port valve using a safety charger.
- Tighten the service port cap (nut) of stop valve firmly. The tightening torque is 12 to 16 N·m. (to prevent slow-leak)
- Check additional refrigerant charging amount referring to table 4 when liquid pipe is one size larger than standard diameter, and table 2 when the pipe is standard diameter.

<Table 2> Additional refrigerant charging amount for pipe of standard diameter

Outdoor unit	Permitted pipe length	Additional refrigerant charging amount for pipe length exceeding 30 m (kg)				Number of bends	Height difference
		31 — 40m	41 — 50m	51 — 60m	61 — 75m		
PUHZ-RP1.6, 2VHA	50m or less	0.2kg	0.4kg	—	—	15	30m or above
PUHZ-RP2.5, 3VHA, 2.5, 3VHA1	50m or less	0.6Kg	1.2Kg	—	—		
PUHZ-RP4-6VHA, RP4-6VHA1, RP4-6YHA	75m or less	0.6kg	1.2kg	1.8kg	2.4kg		

<Table 3>

Outdoor unit	Permitted pipe length	Recharge refrigerant amount or additional amount in parentheses						
		10m or below	11 — 20m	21 — 30m	31 — 40m	41 — 50m	51 — 60m	61 — 75m
PUHZ-RP1.6, 2VHA	50m or less	2.1	2.3	2.5	2.7 (0.2)	2.9 (0.4)	— —	— —
PUHZ-RP2.5, 3VHA PUHZ-RP2.5, 3VHA1	50m or less	3.1	3.3	3.5	4.1 (0.6)	4.7 (1.2)	— —	— —
PUHZ-RP4-6VHA	75m or less	5.1	5.3	5.5	6.1 (0.6)	6.7 (1.2)	7.3 (1.8)	7.9 (2.4)
PUHZ-RP4-6VHA1 PUHZ-RP4-6YHA	75m or less	4.6	4.8	5.0	5.6 (0.6)	6.2 (1.2)	6.8 (1.8)	7.4 (2.4)

<Table 4> Required additional charge when the pipe size is larger than the standard diameter

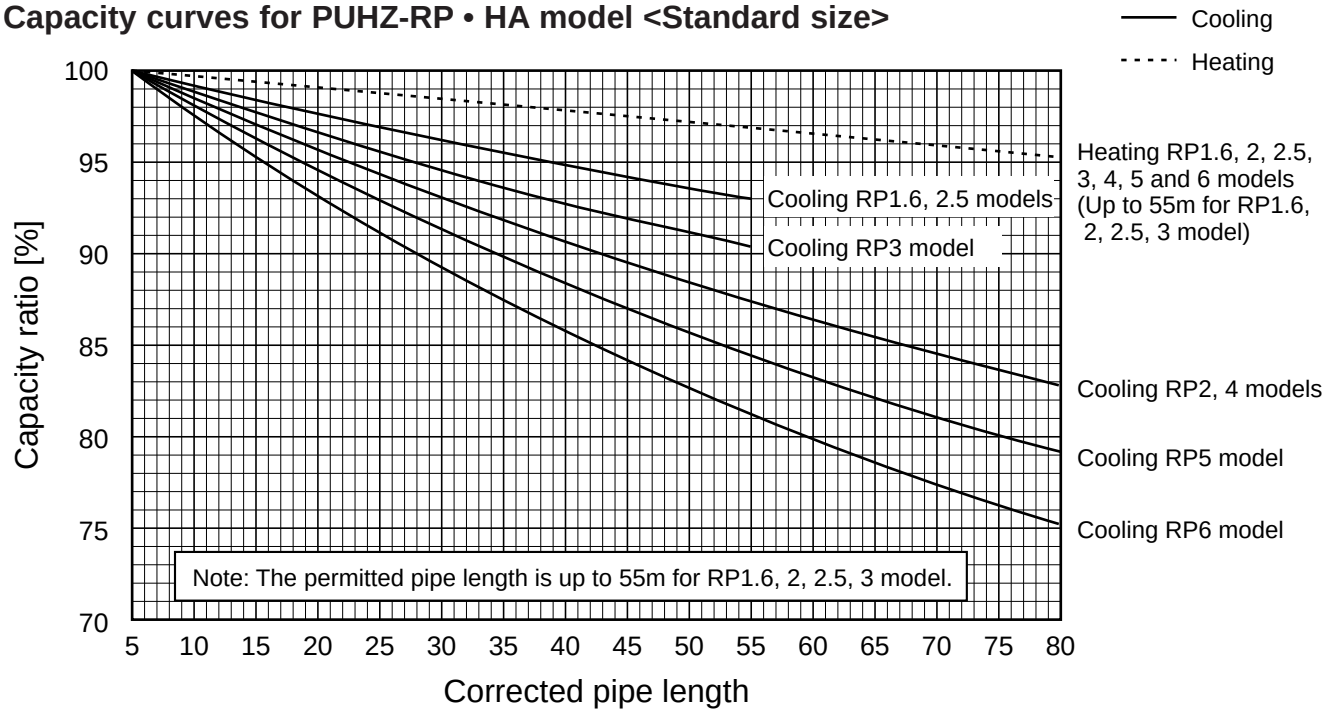
	Liquid pipe dia	Chargeless	Max. pipe length	Refrigerant amount to be added
RP1.6, 2	ϕ9.52	20m	30m	60 g per 1 m longer than 20 m
RP2.5, 3	ϕ12.7	20m	30m	100 g per 1 m longer than 20 m
RP4-6	ϕ12.7	20m	50m	100 g per 1 m longer than 20 m

(c) Capacity correction

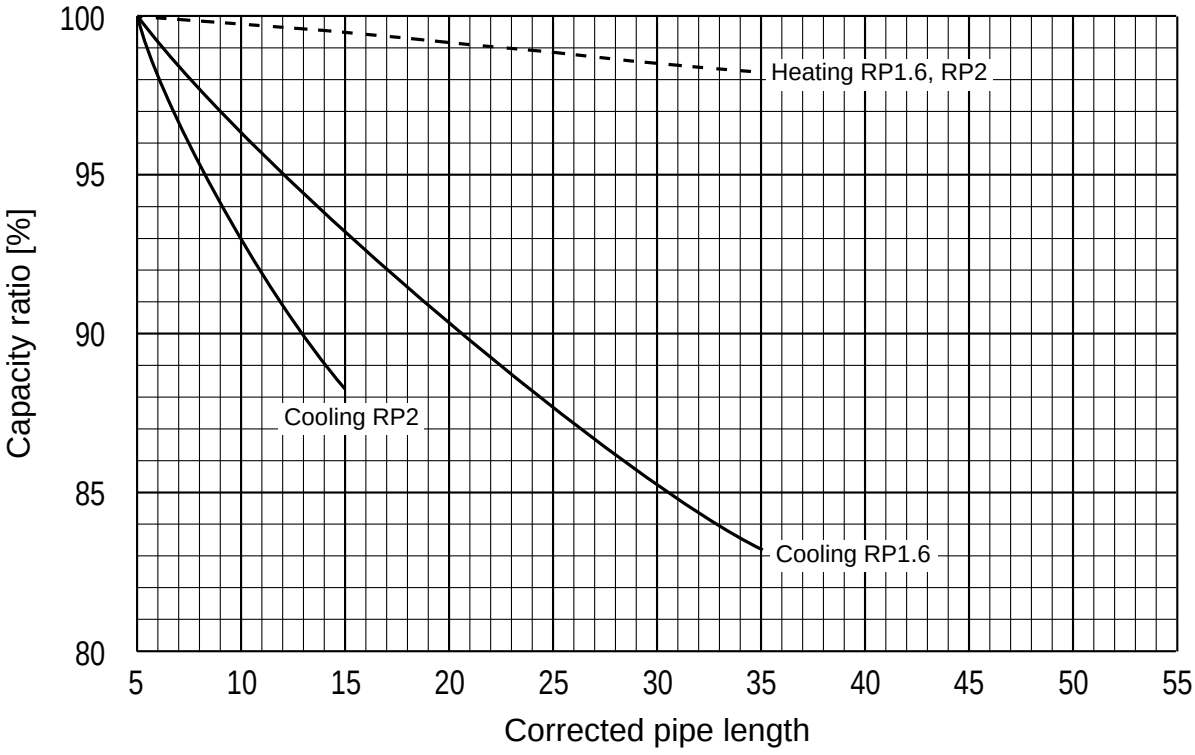
Cooling and heating capacity is lowered according to pipe length. Capacity can be obtained by referring to the capacity curves below. When the diameter of gas pipe is one size smaller than standard diameter, cooling capacity is lowered comparing to the standard diameter. The lowered capacity can be obtained by referring to capacity curves for gas pipe which is one size smaller than standard size.

Corrected pipe length (m) = actual pipe length (m) + number of bends x 0.3 (m)

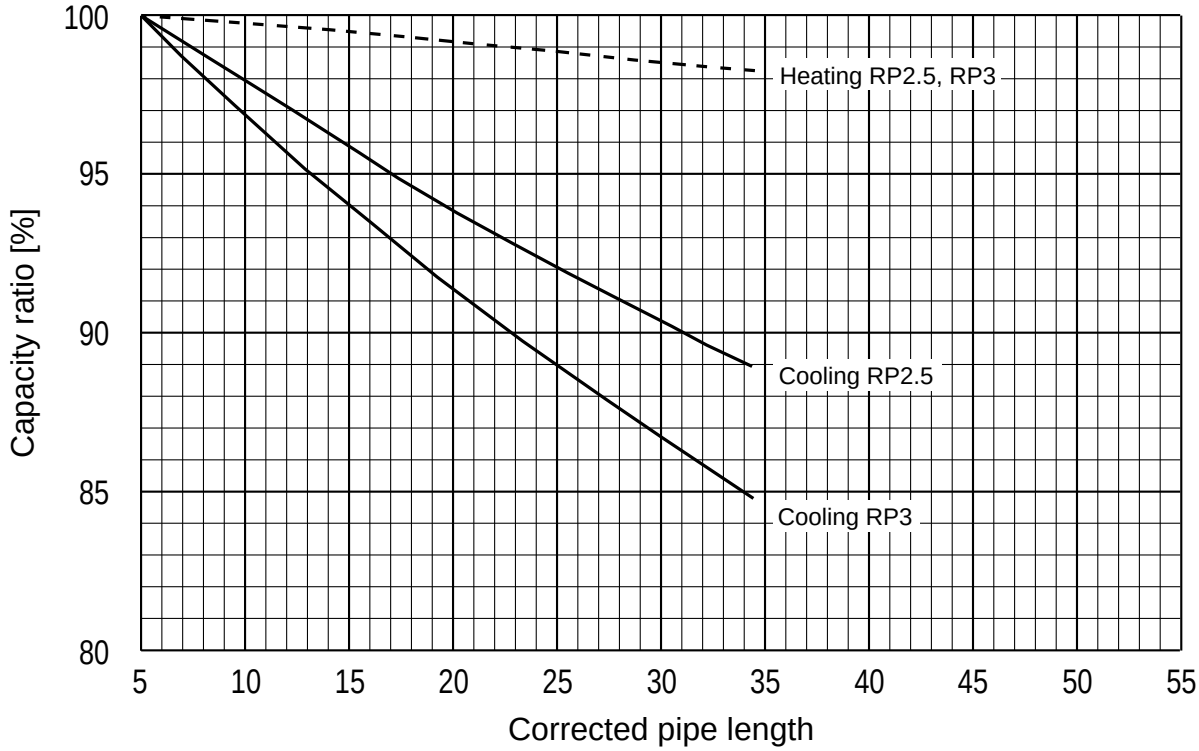
① Capacity curves for PUHZ-RP • HA model <Standard size>


Cooling
Heating
100
95
90
85
80
75
70
Capacity ratio [%]
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80
Corrected pipe length
Cooling RP1.6, 2.5 models
Cooling RP3 model
Heating RP1.6, 2, 2.5, 3, 4, 5 and 6 models (Up to 55m for RP1.6, 2, 2.5, 3 model)
Cooling RP2, 4 models
Cooling RP5 model
Cooling RP6 model
Note: The permitted pipe length is up to 55m for RP1.6, 2, 2.5, 3 model.

② Capacity curve for PUHZ-RP1.6, 2 models <When gas pipe is one size smaller than standard size>



③ Capacity curve for PUHZ-RP2.5, 3 models
<When gas pipe is one size smaller than standard size>



④ When gas pipe is one size larger than standard size for PUHZ-RP4, 5 and 6.
① Capacity can be obtained by referring to capacity curves of standard size.

1. Refrigerant collecting (pump down)

Perform the following procedures to collect the refrigerant when moving the indoor unit or the outdoor unit.

①Before collecting the refrigerant, first make sure that the all of the SW5 DIP switches for function changes on the control board of the outdoor unit are set to OFF. If all of the SW5 switches are not set to OFF, record the settings and then set all of the switches to OFF. Now, start refrigerant collecting operation. After moving the unit to a new location and completing the test run, set the SW5 switches to the previously recorded settings.

②Turn on the power supply (circuit breaker).

※When power is supplied, make sure that “CENTRALLY CONTROLLED” is not displayed on the remote controller. If “CENTRALLY CONTROLLED” is displayed, the refrigerant collecting (pump down) cannot be completed normally.

③After the liquid stop valve is closed, set the SWP switch on the control board of the outdoor unit to ON. The compressor (outdoor unit) and ventilators (indoor and outdoor units) start operating and refrigerant collecting operation begins. LED1 and LED2 on the control board of the outdoor unit are lit.

※Set the SWP switch (push-button type) to ON in order to perform refrigerant collecting operation only when the unit is stopped. However, refrigerant collecting operation cannot be performed until compressor stops even if the unit is stopped. Wait three minutes until compressor stops and set the SWP switch to ON again.

④Because the unit automatically stops in about two to three minutes after the refrigerant collecting operation (LED1 is not lit and LED2 is lit), be sure to quickly close the gas stop valve.

※In case the outdoor unit is stopped when LED1 is lit and LED2 is not lit, open the liquid stop valve completely, and then repeat step ③ three minutes later.

※If the refrigerant collecting operation has been completed normally (LED1 is not lit and LED2 is lit), the unit will remain stopped until the power supply is turned off.

⑤Turn off the power supply (circuit breaker.)

2. Unit replacement operation

When reusing the existing pipes that carried R22 refrigerant for the RP4, RP5 and RP6 models, replacement operation must be performed before performing a test run.

①If new pipes are used, these procedures are not necessary.

②If existing pipes that carried R22 refrigerant are used for the RP3 model, these procedures are not necessary. (The replacement operation cannot be performed.)

③During replacement operation, “C5” is displayed on “A-Control Service Tool(PAC-SK52ST)”. (This is applied to only RP4, RP5 and RP6 models.)

• Replacement operation procedures

①Turn on the power supply.

②Set DIP switch SW8-2 on the control board of the outdoor unit to ON to start replacement operation.

- The replacement operation is performed using the cooling system. Cool air will flow from the indoor unit during the replacement operation.
- During the replacement operation, TEST RUN is displayed on the remote controller and LED1 (green) and LED2 (red) on the control board of the outdoor unit flash together.

③Replacement operation requires at least two hours to complete.

- After setting switch SW8-2 to ON, the unit automatically stops after two hours.
- Replacement operation can be performed repeatedly by setting switch SW8-2 from OFF to ON. Make sure to perform the operation more than 2 hours. (If the operation is performed less than 2 hours, the existing pipes cannot be cleaned enough and the unit may be damaged.)
- If replacement operation is performed over 2 hours, this action is recorded into nonvolatile memory of control board.

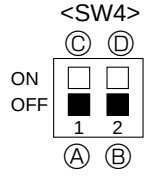
④Set switch SW8-2 to OFF. (Replacement operation is completed.)

※The unit can be operated normally by remote controller even if SW8-2 remains ON.

※If the indoor temperature is less than 15℃, the compressor will operate intermittently but the unit is not faulty.

3. Start and finish of test run

- Operation from the indoor unit
  Execute the test run using the installation manual for the indoor unit.
- Operation from the outdoor unit
  By using the DIP switch SW4 on the control board of outdoor unit, test run can be started and finished, and its operation mode (cooling/heating) can be set up.
  ①Set the operation mode (cooling/heating) using SW4-2.
  ②Turn on SW4-1 to start test run with the operation mode set by SW4-2.
  ③Turn off SW4-1 to finish the test run.



Ⓐ Stop Ⓒ operation
Ⓑ Cooling Ⓓ Heating

- There may be a faint knocking sound around the machine room after power is supplied, but this is no problem with product because the linear expansion pipe is just moving to adjust opening pulse.
- There may be a knocking sound around the machine room for several seconds after compressor starts operating, but this is no problem with product because the check valve, itself, generates the sound because pressure difference is small in the refrigerant circuit.

Note:

The operation mode cannot be changed by SW4-2 during test run. (To change test run mode, stop the unit by SW4-1, change the operation mode and restart the test run by SW4-1.)

11 TROUBLESHOOTING

11-1. TROUBLESHOOTING

<Error code display by self-diagnosis and actions to be taken for service (summary)>

Present and past error codes are logged and displayed on the wired remote controller and control board of outdoor unit. Actions to be taken for service, which depends on whether or not the inferior phenomenon is reoccurring at service, are summarized in the table below. Check the contents below before investigating details.

Unit conditions at service	Error code	Actions to be taken for service (summary)
The inferior phenomenon is reoccurring.	Displayed	Judge what is wrong and take a corrective action according to “11-4. Self-diagnosis action table”.
	Not displayed	Conduct trouble shooting and ascertain the cause of the inferior phenomenon according to “11-5. Troubleshooting by inferior phenomena”.
The inferior phenomenon is not reoccurring.	Logged	①Consider the temporary defects such as the work of protection devices in the refrigerant circuit including compressor, poor connection of wiring, noise and etc. Re-check the symptom, and check the installation environment, refrigerant amount, weather when the inferior phenomenon occurred, matters related to wiring and etc. ②Reset error code logs and restart the unit after finishing service. ③There is no abnormality concerning of parts such as electrical component, controller board, remote controller and etc.
	Not logged	①Re-check the abnormal symptom. ②Conduct trouble shooting and ascertain the cause of the inferior phenomenon according to “11-5. Troubleshooting by inferior phenomena”. ③Continue to operate unit for the time being if the cause is not ascertained. ④There is no abnormality concerning of parts such as electrical component, controller board, remote controller and etc.

11-2. CHECK POINT UNDER TEST RUN (MA remote controller)

(1) Before test run

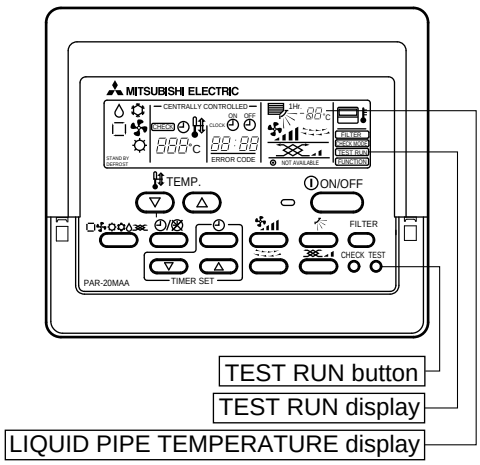
- After installation of indoor and outdoor units, piping work and electric wiring work, re-check that there is no refrigerant leakage, loosened connections and incorrect polarity.
- Measure impedance between the ground and the power supply terminal block(L, N) on the outdoor unit by 500V Merger and check that it is 1.0MΩ or over.

※Don't use 500V Merger to indoor/outdoor connecting wire terminal block(S1, S2, S3) and remote controller terminal block (1, 2). This may cause malfunction.

- Make sure that test run switch (SW4) is set to OFF before turning on power supply.
- Make sure that all of the SW5 switches for function changes on the control board of the outdoor unit are set to OFF. If all of the SW5 switches are not set to OFF, record the settings and then set all of the switches to OFF. And perform emergency operation. After finishing emergency operation, set the SW5 switches to the recorded settings.
- Turn on power supply twelve hours before test run in order to protect compressor.
- For specific models which requires higher ceiling settings or auto-recovery feature from power failure, make proper changes of settings referring to the description of "Selection of Functions through Remote Controller".

Make sure to read operation manual before test run. (Especially items to secure safety.)

11-2-1. Test run by remote controller



Operating procedures	
1. Turn on the main power supply.	While the room temperature display on the remote controller is "H0", the remote controller is disabled. Wait until "H0" disappears before using remote controller. "H0" appears for about 2 minutes after power supply is turned on. ※1
2. Press [TEST RUN] button twice.	The [TEST RUN] appears on the screen.
3. Press [OPERATION SWITCH] button.	Cooling mode: Check if cool air blows and water is drained. Heating mode: Check if warm air blows. (It takes a little while until warm air blows.)
4. Press [AIR DIRECTION] button.	Check for correct motion of auto-vanes.
5. Check the outdoor unit fan for correct running.	The outdoor unit features automatic capacity control to provide optimum fan speeds. Therefore, the fan keeps running at a low speed to meet the current outside air condition unless it exceeds its available maximum power. Then, in actuality, the fan may stop or run in the reverse direction depending on the outside air, but this does not mean malfunction.
6. Press the [ON/OFF] button to reset the test run in progress.	
7. Turn off the main power supply.	

- In case of test run, the OFF timer will be activated, and the test run will automatically stop after two hours.
- The room temperature display section shows the pipe temperature of indoor units during the test run.
- Check that all the indoor units are running properly in case of simultaneous twin and triple operation. Malfunctions may not be displayed regardless of incorrect wiring.

※1 After turning on the power supply, the system will go into startup mode, "H0" will blink on the display section of the room temperature, and lamp(red) of the remote controller will flash.
As to INDOOR BOARD LED, LED1 and LED2 will be lit up in case the address is 0, or turned off in case the address is not 0. LED3 will blink.
As to OUTDOOR BOARD LED, LED1(green) and LED2(red) will light up. (After the startup mode of the system finishes, LED2(red) will be turned off.)
In case OUTDOOR BOARD LED is digital display, [□—] and [—□] will be displayed alternately every second.

- If one of the above operations doesn't function correctly, the causes written below should be considered. Find causes from the symptoms.
  The below symptoms are under test run mode. "startup" in the table means the display status of ※1 written above.

Symptoms in test run mode		Cause
Remote Controller Display	**OUTDOOR BOARD LED Display** < > indicates digital display.	
Remote controller displays "H0", and cannot be operated.	After "startup" is displayed, only green lights up. <00>	• After power is turned on, "H0" is displayed for 2 minutes during system startup. (Normal)
After power is turned on, "H0" is displayed for 3 minutes, then error code is displayed.	After "startup" is displayed, green(once) and red(once) blink alternately. <F1>	• Incorrect connection of outdoor terminal block (L, N and S1, S2, S3.)
	After "startup" is displayed, green(once) and red(twice) blink alternately. <F3, F4, F9>	• Outdoor unit's safeguard installation connector is open.
No display appears even when remote controller operation switch is turned on. (Operation lamp does not light up.)	After "startup" is displayed, green(twice) and red(once) blink alternately. <EA. Eb>	• Incorrect wiring between the indoor and outdoor unit (Polarity is wrong for S1, S2, S3.) • Remote controller transmission wire short.
	After "startup" is displayed, only green lights up. <00>	• There is no outdoor unit of address 0. (Address is other than 0.) • Remote controller transmission wire burnout.
Display appears but soon disappears even when remote controller is operated.	After "startup" is displayed, only green lights up. <00>	• After canceling function selection, operation is not possible for about 30 seconds. (Normal)

※Press the remote controller's (CHECK) button twice to perform self-diagnosis. See the table below for the contents of LCD display.

LCD	Contents of inferior phenomena	LCD	Contents of inferior phenomena
P1	Abnormality of room temperature thermistor	U1~UP	Malfunction outdoor unit
P2	Abnormality of pipe temperature thermistor/Liquid	F3~F9	Malfunction outdoor unit
P4	Abnormality of drain sensor	E0~E5	Remote controller transmitting error
P5	Drain overflow protection is working.	E6~EF	Indoor/outdoor unit communication error
P6	Freezing/overheating protection is working.	----	No error history
P8	Abnormality of pipe temperature	FFFF	No applied unit
P9	Abnormality of pipe temperature thermistor/Cond./Eva		

See the table below for details of the LED display (LED 1, 2, 3) on the indoor controller board.

LED1 (microcomputer power supply)	Lits when power is supplied.
LED2 (remote controller)	Remote controller The indoor unit should be connected to the outdoor unit with address "0" setting.
LED3 (indoor/outdoor communication)	Flash when indoor and outdoor unit are communicating.

11-2-2. Test run by outdoor unit SW4

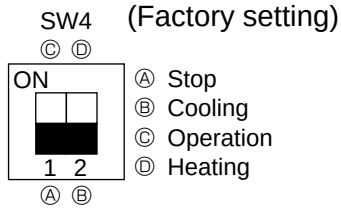
The setting of test run (ON/OFF) and its operation mode (cooling/heating) can be set by SW4 on the controller board of outdoor unit. Check that SW5-1 is set to OFF before performing test run. If SW5-1 is set to ON, turn it OFF and then perform test run. After finishing test run, set SW5-1 back to ON.

①Set operation mode(cooling or heating) by SW4-2.

②Start test run by setting SW4-1 to ON (⤒) with the indicated operation mode of SW4-2.

③Finish test run by setting SW4-1 to OFF (⤓).

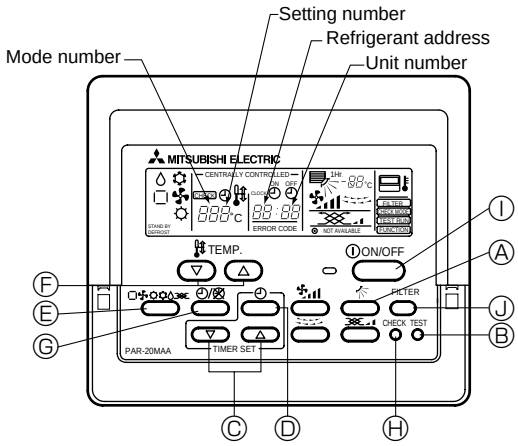
- Operation mode cannot be changed by SW4-2 during test run.
  Stop test run to change operation mode by SW4-1, and restart test run by SW4-1 after the mode is changed.
- Test run automatically stops 2 hours later by 2-hour OFF timer function.
- Test run can be performed by the remote controller.
- The remote controller display of test run by outdoor unit is the same as that of test run by remote controller.



11-3. MALFUNCTION-DIAGNOSIS METHOD BY REMOTE CONTROLLER

11-3-1. Error history of unit

(1) Wired remote controller



<In case of trouble during operation>

If there is a trouble on air conditioner, both indoor unit and outdoor unit will stop and digital display shows what was wrong.

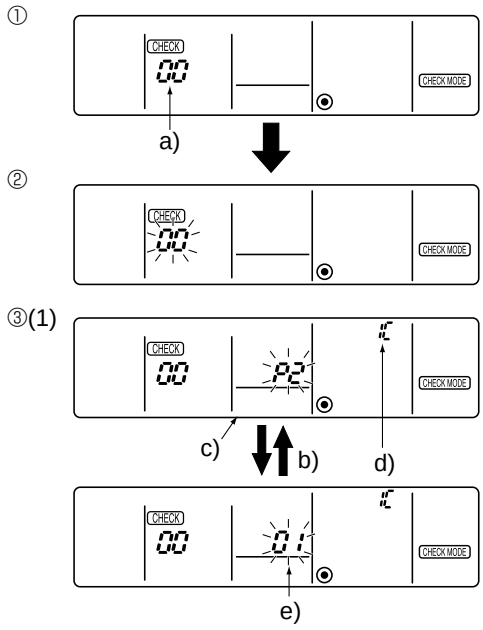
① "CHECK" and refrigerant address are displayed at set temperature display. Error code and unit number are displayed at clock display alternately.
(If outdoor unit is malfunctioning, unit number is 00.)

② The refrigerant address and error code initially sent from the unit are displayed in case of group control system which one remote controller controls plural refrigerant systems.

③ Press the "ON/OFF" button to cancel error code.
In case of central control by the controller of MELANS, cancel the error code by the controller of the MELANS, and in case of distant-handy combined operation, cancel the error code by cancelling distant operation.

<Malfunction-diagnosis method at maintenance service>

Digital control has memory function that memorizes latest error code even if it is cancelled by remote controller or power is shut off, so error histories can be searched by following the procedure below.

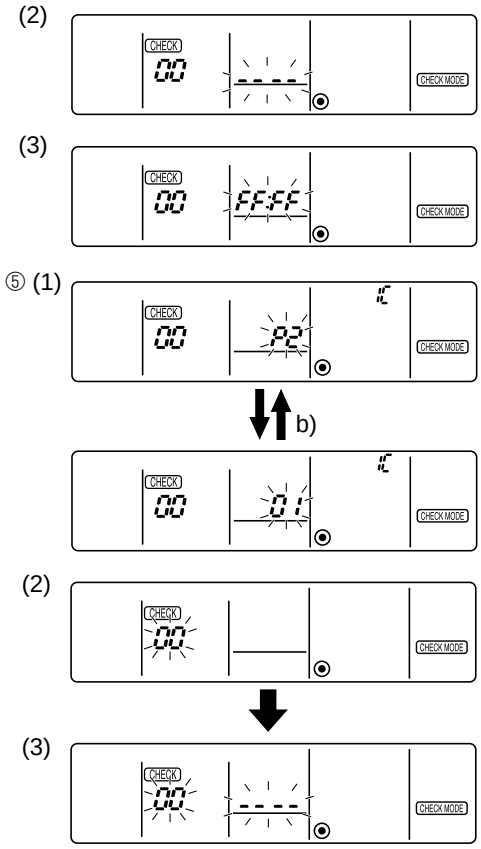


Search error histories of each unit by remote controller.

① Turn to self-diagnosis mode.
Press the Ⓗ "CHECK" button twice within three seconds, and following display appears.
a) Refrigerant address for self-diagnosis

② Set refrigerant address number that you want to diagnose.
Press the Ⓕ ▽△ (temp.) button to set refrigerant address to be diagnosed.
Refrigerant address has number from 00 to 15.
Three seconds after setting, lighted self-diagnosed refrigerant address begins blinking and self-diagnosis process begins.

③ Self-diagnosis result display
(1) When there is an error history.
(Refer to 11-4. for details of error code contents.)
b) Alternating display
c) Error code
d) Attribute of error search
e) Unit number
(2) When there is no error history.
(3) When the address does not exist.



④ To cancel self-diagnosis

There are following two methods to cancel self-diagnosis:

Press the Ⓗ "CHECK" button twice within three seconds.

➜Self-diagnosis is cancelled and the display screen will return to the status before self-diagnosis.

Press the ① "ON/OFF" button.

➜Self-diagnosis is cancelled and indoor unit will stop.

This operation is ineffectual when the operation of remote controller is prohibited.

During self-diagnosis at maintenance service, all the indoor units start performing fan operation except for the indoor unit indicating the latest error. Then outdoor units of the same refrigerant system also start performing fan operation intermittently for 3 minutes. (The fan is on for 3 seconds and then off for 5 seconds.)

The unit with error can be inspected by using this. In case unit other than indoor unit, such as outdoor unit and controller of MELANS, has an error, all the indoor units of the same refrigerant system stop fan operation and outdoor units operate intermittently for 3 minutes.

⑤ To delete error code

When something is wrong with air conditioner, error code (P1 etc.) is memorized, but error code can be deleted after termination of service.

<To delete error cord with remote controller>

(1) Display the error cord at the self-diagnosis result display screen.
b) Alternating display

(2) The address for self-diagnosis will blink when the Ⓓ ◴ button is pressed twice within three seconds.

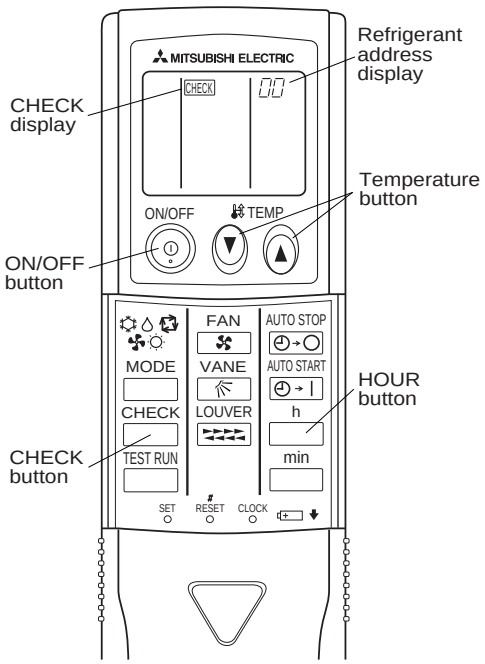
(3) The display (3) shown on the left will be appeared when the error cord has been reset. Note that the error content will be redisplayed if error cord resetting is unsuccessful.

<To delete error cord with switch of outdoor unit>

Refer to **11-10. Function of switches, connectors and jumpers**.

(2) Digital wireless remote controller
<In case of trouble during operation>
When a malfunction occurs to air conditioner, both indoor unit and outdoor unit will stop and operation lamp blinks to inform unusual stop.

<Malfunction-diagnosis method at maintenance service>



[Procedure]

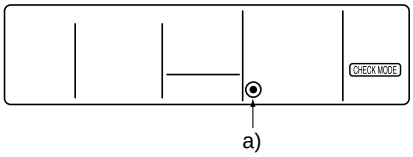
1. Press the CHECK button twice.
   - "CHECK" lights, and refrigerant address "00" flashes.
   - Check that the remote controller's display has stopped before continuing.
2. Press the temperature buttons.
   - Select the refrigerant address of the indoor unit for the self-diagnosis.

   Note: Set refrigerant address using the outdoor unit's DIP switch (SW1). (For more information, see the outdoor unit installation manual.)
3. Point the remote controller at the sensor on the indoor unit and press the HOUR button.
   - If an air conditioner error occurs, the indoor unit's sensor emits an intermittent buzzer sound, the operation light flashes, and the error code is output. (It takes 3 seconds at most for error code to appear.)
4. Point the remote controller at the sensor on the indoor unit and press the ON/OFF button.
   - The check mode is cancelled.

✻ Malfunction diagnosis can be performed only for refrigerant system controlling wireless units.

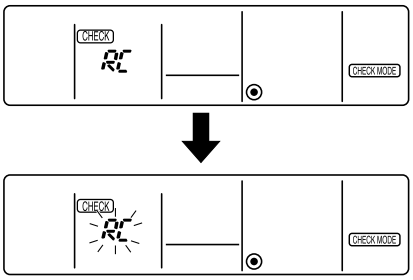
Inspected unit	Error code	Beep output	Operation LED	Inspected unit	Check code	Beep output	Operation LED
Indoor unit	P1	beep × 1 time	1 sec. × 1 time	Outdoor unit	F1–F9	beep beep × 1 time	(0.4sec+0.4sec) × 1 time
	P2	beep × 2 times	1 sec.× 2 times		U0–UP		
	P4	beep × 4 times	1 sec.× 4 times		E6–EE	Other than above	Other than above
	P5	beep × 5 times	1 sec.× 5 times	—	No check code (normal)	No output	Lights off
	P6	beep × 6 times	1 sec.× 6 times		No check code (mistake of matching with refrigerant address)	beep beep beep	Lights off
	P8	beep × 8 times	1 sec.× 8 times				
	P9	beep × 2 times	1 sec.× 2 times				
	E4, E5	Other than above	Other than above				

①

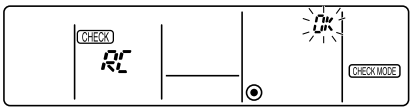


a)

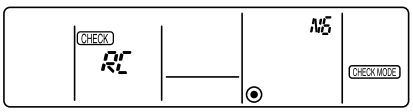
②



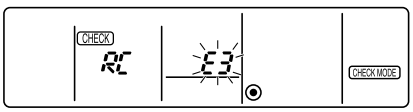
③(1)



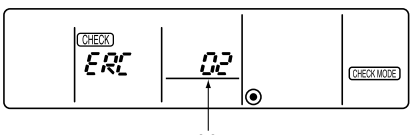
(2)



(3)



(4)



b)

11-3-2. Wired Remote controller Diagnosis

If operation can not be carried out from remote controller, try remote controller diagnosis with following process.

① First, check the electricity current marker.
When correct voltage (DC12V) is not supplied to remote controller, the electricity current marker is put out.
If the electricity current marker is not lighted, check the remote controller wiring and the indoor units.
a) Electric current marker

② Transfer to remote controller diagnosis mode
Hold down the Ⓗ "CHECK" button for five seconds or more, and following display appears.
Press the Ⓐ "FILTER" button, and remote controller diagnosis will begin.

③ Remote controller diagnosis result
(1) When the remote controller is functioning correctly
Check other possible causes, as there is no problem with remote controller.
Consider the unit is normal when remote controller transmits the result of diagnosis to indoor or outdoor unit and receives the same data back.
(2) When remote controller has malfunction
The remote controller must be replaced.
If the transmitting-receiving circuit is defective, ['NG'] blinks.
"NG" will be displayed when remote controller transmits the result of diagnosis to indoor or outdoor unit, and receives no response.

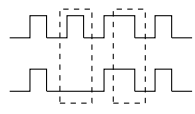
When there might be other problems than diagnosed remote controller,

(3) There might be noise on transmission path or damage of other remote controllers or indoor units. Check the transmission path and other controllers.
If the transmission is not possible, [E3] blinks.
"E3" will be displayed when remote controller transmits the result of diagnosis to indoor or outdoor unit and receives different data back.
(4) The number of data errors means the difference between the number of bits sent from remote controller and the actual number of bits sent to transmission path.
If the data error is displayed, noise and etc. are interfering with the transmission data. Check the transmission path.
If the data error has occurred, [ERC] and number of data errors are displayed.
b) Number of generated data errors (maximum 66 errors)

When the number of data errors is 02.

Transmission data from remote controller

Transmission data on transmission path



④ Cancel the remote controller diagnosis
Hold down the Ⓗ "CHECK" button for five seconds or more to cancel remote controller diagnosis, then [H0] operation lamp will blink and the display screen will return to the status before remote controller diagnosis in about 30 seconds.

11-4. SELF-DIAGNOSIS ACTION TABLE

<Abnormalities detected when the power is put on> (Note 1) Refer to indoor unit section for code P and code E.

Error Code	Meaning of error code and detection method	Case	Judgment and action
None	—	① No voltage is supplied to terminal block(TB1) of outdoor unit. a) Power supply breaker is put off. b) Contact failure or disconnection of power supply terminal c) Open phase (L or N phase) ② Electric power is not charged to power supply terminal of outdoor power circuit board. a) Contact failure of power supply terminal b) Open phase on the outdoor power circuit board RP1.6-3V :Disconnection of connector R or S RP4V~6V :Disconnection of connector SC-R or SC-S ③ Electric power is not supplied to outdoor controller circuit board. a) Disconnection of connector (CNDC) ④ Disconnection of reactor (DCL or ACL) ⑤ Disconnection of outdoor noise filter circuit board or parts failure in outdoor noise filter circuit board ⑥ Defective outdoor power circuit board ⑦ Defective outdoor controller circuit board	① Check following items. a) Power supply breaker b) Connection of power supply terminal block. (TB1) c) Connection of power supply terminal block. (TB1) ② Check following items. a) Connection of power supply terminal block. (TB1) b) Connection of terminal on outdoor power circuit board. RP1.6-3V :Disconnection of connector R or S. Refer to page 59. RP4V-6V :Disconnection of connector SC-R or SC-S. Refer to page 60. ③ Check connection of the connector (CNDC) on the outdoor controller circuit board. Check connection of the connector, LD1 and LD2 for RP1.6-3V and CNDC for RP4-6V, on the outdoor power circuit board. Refer to page 53, 59 and 60. . ④ Check connection of reactor. (DCL or ACL) RP1.6-3V: Check connection of “LO” and “NO” on the outdoor noise filter circuit board. Check connection of “R” and “S” on the outdoor power circuit board. Refer to page 55, 56 and 59. RP4-6V: Check connection of “L1” and “L2” on the active filter module.(ACTM) ⑤ a) Check connection of outdoor noise filter circuit board. b) Replace outdoor noise filter circuit board. Refer to page 55, 56 and 59. ⑥ Replace outdoor power circuit board. ⑦ Replace controller board (When items above are checked but the units can not be repaired.)
F3 (5202)	**63L connector open** Abnormal if 63L connector circuit is open for three minutes continuously after power supply. 63L: Low-pressure switch <PUHZ-RP4-6VHA, RP4-6YHA only>	① Disconnection or contact failure of 63L connector on outdoor controller circuit board ② Disconnection or contact failure of 63L ③ 63L is working due to refrigerant leakage or defective parts. ④ Defective outdoor controller circuit board	① Check connection of 63L connector on outdoor controller circuit board. Refer to 11-9. ② Check the 63L side of connecting wire. ③ Check refrigerant pressure. Charge additional refrigerant. Check continuity by tester. Replace the parts if the parts are defective. ④ Replace outdoor controller circuit board.
F5 (5201)	**63H connector open** Abnormal if 63H connector circuit is open for three minutes continuously after power supply. 63H: High-pressure switch	① Disconnection or contact failure of 63H connector on outdoor controller circuit board ② Disconnection or contact failure of 63H ③ 63H is working due to defective parts. ④ Defective outdoor controller circuit board	① Check connection of 63H connector on outdoor controller circuit board. Refer to 11-9. ② Check the 63H side of connecting wire. ③ Check continuity by tester. Replace the parts if the parts are defective. ④ Replace outdoor controller circuit board.
F9 (4119)	**2 connector open** Abnormal if both 63H and 63L connector circuits are open for three minutes continuously after power supply. 63H: High-pressure switch 63L: Low-pressure switch <PUHZ-RP4-6VHA, RP4-6YHA only>	① Disconnection or contact failure of connector (63H,63L) on outdoor controller circuit board. ② Disconnection or contact failure of 63H, 63L ③ 63H and 63L are working due to defective parts. ④ Defective outdoor controller board.	① Check connection of connector(63H,63L) on outdoor controller circuit board. Refer to 11-9. ② Check the 63H and 63L side of connecting wire. ③ Check continuity by tester. Replace the parts if the parts are defective. ④ Replace outdoor controller circuit board.

Error Code	Meaning of error code and detection method	Case	Judgment and action
EA (6844)	**Indoor/outdoor unit connector mis-wiring, excessive number of units (4 units or more)** 1. Outdoor controller circuit board can automatically check the number of connected indoor units. Abnormal if the number cannot be checked automatically due to mis-wiring of indoor/outdoor unit connecting wire and etc. after power is turned on for 4 minutes. 2. Abnormal if outdoor controller circuit board recognizes the number of connected indoor units as “4 units or more”.	① Contact failure or mis-wiring of indoor/outdoor unit connecting wire ② Diameter or length of indoor/outdoor unit connecting wire is out of specified capacity. ③ 4 or more indoor units are connected to one outdoor unit. ④ Defective transmitting receiving circuit of outdoor controller circuit board ⑤ Defective transmitting receiving circuit of indoor controller board ⑥ Defective indoor power board ⑦ Two or more outdoor units have refrigerant address “0” . (In case of group control) ⑧ Noise has entered into power supply or indoor / outdoor unit connecting wire.	① Check disconnection or looseness or polarity of indoor/outdoor unit connecting wire of indoor and outdoor units. ② Check diameter and length of indoor/outdoor unit connecting wire. Total wiring length: 80m (including wiring connecting each indoor unit and between indoor and outdoor unit) Also check if the connection order of flat cable is S1, S2, S3. ③ Check the number of indoor units that are connected to one outdoor unit. (If EA is detected) ④~⑥ Put the power off once, and on again to check. Replace outdoor controller circuit board, indoor controller board or indoor power board if abnormality occurs again. ⑦ Check if refrigerant addresses (SW1-3 to SW1-6 on outdoor controller circuit board) are overlapping in case of group control system. ⑧ Check transmission path, and remove the cause. ※ The descriptions above, ①-⑧, are for EA, Eb and EC.
Eb (6845)	**Mis-wiring of indoor/outdoor unit connecting wire (converse wiring or disconnection)** Outdoor controller circuit board can automatically set the unit number of indoor units. Abnormal if the indoor unit number can not be set within four minutes after power on because of mis-wiring (converse wiring or disconnection) of indoor/outdoor unit connecting wire.	① Contact failure or mis-wiring of indoor/outdoor unit connecting wire ② Diameter or length of indoor/outdoor unit connecting wire is out of specified capacity. ④ Defective transmitting receiving circuit of outdoor controller circuit board. ⑤ Defective transmitting receiving circuit of indoor controller board ⑥ Defective indoor power board. ⑦ Two or more outdoor units have refrigerant address “0” . (In case of group control) ⑧ Noise has entered into power supply or indoor/outdoor unit connecting wire.	
EC (6846)	**Start-up time over** The unit can not finish start-up process within four minutes after power on.	① Contact failure of indoor/ outdoor unit connecting wire ② Diameter or length of indoor/ outdoor unit connecting wire is out of specified capacity. ⑦ Two or more outdoor units have refrigerant address “0” . (In case of group control) ⑧ Noise has entered into power supply or indoor/outdoor unit connecting wire.	

<Abnormalities detected while unit is operating>

Error Code	Meaning of error code and detection method	Case	Judgment and action
U1 (1302)	**Abnormal high pressure (High-pressure switch 63H worked)** Abnormal if high-pressure switch 63H worked (※) during compressor operation. ※ RP1.6-2VHA : 4.15 MPa RP2.5-6VHA : 4.41 MPa RP2.5-6VHA$_1$: 4.15 MPa RP4-6YHA : 4.15 MPa 63H: High-pressure switch	① Short cycle of indoor unit ② Clogged filter of indoor unit ③ Decreased airflow caused by dirt of indoor fan ④ Dirt of indoor heat exchanger ⑤ Locked indoor fan motor ⑥ Malfunction of indoor fan motor ⑦ Defective operation of stop valve (Not full open) ⑧ Clogged or broken pipe ⑨ Locked outdoor fan motor ⑩ Malfunction of outdoor fan motor ⑪ Short cycle of outdoor unit ⑫ Dirt of outdoor heat exchanger ⑬ Decreased airflow caused by defective inspection of outside temperature thermistor (It detects lower temperature than actual temperature.) ⑭ Disconnection or contact failure of connector (63H) on outdoor controller board ⑮ Disconnection or contact failure of 63H connection ⑯ Defective outdoor controller board ⑰ Defective action of linear expansion valve ⑱ Malfunction of fan driving circuit	①~⑥Check indoor unit and repair defectives. ⑦ Check if stop valve is full open. ⑧ Check piping and repair defectives. ⑨~⑫ Check outdoor unit and repair defectives. ⑬ Check the inspected temperature of outside temperature thermistor on LED display. (SW2 on A-Control Service Tool : Refer to page 68.) ⑭~⑯Put the power off and check F5 is displayed when the power is put again. When F5 is displayed, refer to “Judgment and action” for F5. ⑰ Check linear expansion valve. Refer to 11-6. ⑱ Replace outdoor controller board.
U2 (1102)	**Abnormal high discharging temperature** (1) Abnormal if discharge temperature thermistor (TH4) exceeds 125℃ or 110℃ continuously for 5 minutes. Abnormal if condenser/evaporator temperature thermistor (TH5) exceeds 40℃ during defrosting and discharge temperature thermistor (TH4) exceeds 110℃. (2) Abnormal if discharge super heat (Cooling: TH4 – TH5 / Heating: TH4 – TH6) increases. All the conditions in A or B are detected simultaneously for 10 minutes continuously after 6 minutes past from compressor start-up (including the thermostat indication or recovery from defrosting). <Condition A> • Heating mode • When discharge super heat is less than 70 deg. • When the TH6 temp is more than the value obtained by TH7 – 5 deg. • When the condensing temp of TH5 is less than 35℃. <Condition B> • During comp operation (Cooling and Heating) • When discharge super heat is less than 80 deg in Cooling. • When discharge super heat is less than 90 deg in Heating. • When condensing temp of TH6 is more than –40℃. (In Cooling only.)	① Over-heated compressor operation caused by shortage of refrigerant ② Defective operation of stop valve ③ Defective thermistor ④ Defective outdoor controller board ⑤ Defective action of linear expansion valve	① Check intake super heat. Check leakage of refrigerant. Charge additional refrigerant. ② Check if stop valve is full open. ③④ Put the power off and check if U3 is displayed when the power is put again. When U3 is displayed, refer to “Judgement and action” for U3. ⑤ Check linear expansion valve. Refer to 11-6.

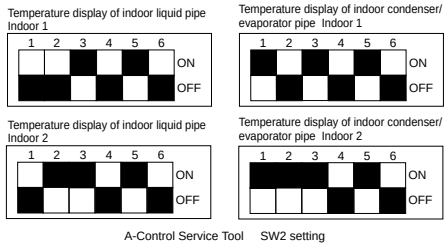
Error Code	Meaning of error code and detection method	Case	Judgment and action
U3 (5104)	**Open/short circuit of discharge temperature thermistor (TH4)** Abnormal if open (3℃ or less) or short (217℃ or more) is detected during compressor operation. (Detection is inoperative for 10 minutes of compressor starting process and for 10 minutes after and during defrosting.)	① Disconnection or contact failure of connector (TH4) on the outdoor controller circuit board. ② Defective thermistor ③ Defective outdoor controller circuit board	① Check connection of connector (TH4) on the outdoor controller circuit board. Check breaking of the lead wire for thermistor (TH4). Refer to 11-9. ② Check resistance value of thermistor (TH4) or temperature by microcomputer. (Thermistor/TH4: Refer to 11-6.) (SW2 on A-Control Service Tool: Refer to page 68.) ③ Replace outdoor controller board.
U4 (TH3:5105) (TH6:5107) (TH7:5106) (TH8:5110)	**Open/short of outdoor unit thermistors (TH3, TH6, TH7, and TH8)** Abnormal if open or short is detected during compressor operation. Open detection of thermistors TH3 and TH6 is inoperative for 10 seconds to 10 minutes after compressor starting and 10 minutes after and during defrosting. ※Check which unit has abnormality in its thermistor by switching the mode of SW2. (Refer to page 73.)	① Disconnection or contact failure of connectors (Outdoor controller circuit board: TH3,TH6/TH7 Outdoor power circuit board: CN3) ② Defective thermistor ③ Defective outdoor controller circuit board	① Check connection of connector (TH3,TH6/TH7) on the outdoor controller circuit board. Check connection of connector (CN3) on the outdoor power circuit board. Check breaking of the lead wire for thermistor (TH3,TH6,TH7,TH8). Refer to page 53, 59 and 60. ② Check resistance value of thermistor (TH3,TH6,TH7,TH8) or check temperature by microcomputer. (Thermistor/TH3,TH6,TH7,TH8: Refer to page 47.) (SW2 on A-Control Service Tool: Refer to page 68.) ③ Replace outdoor controller circuit board. ※Emergency operation is available in case of abnormalities of TH3, TH6 and TH7. Refer to 11-8.
U5 (4230)	**Abnormal temperature of heat sink** Abnormal if heat sink thermistor(TH8) detects temperature indicated below. RP1.6V, 2VHA·····84℃ RP2.5V, 3VHA·····77℃ RP4-6VHA·····85℃ RP4-6YHA·····95℃	① The outdoor fan motor is locked. ② Failure of outdoor fan motor ③ Air flow path is clogged. ④ Rise of ambient temperature ⑤ Defective thermistor ⑥ Defective input circuit of outdoor power circuit board ⑦ Failure of outdoor fan drive circuit	①② Check outdoor fan. Refer to (9) in “12-2 Trouble shooting by inferior phenomena ” on Service Technical Guide for OCT04. ③ Check air flow path for cooling. ④ Check if there is something which causes temperature rise around outdoor unit. (Upper limit of ambient temperature is 46℃.) Turn off power, and on again to check if U5 is displayed within 30 minutes. If U4 is displayed instead of U5, follow the action to be taken for U4. ⑤ Check resistance value of thermistor (TH8) or temperature by microcomputer. (Thermistor/TH8: Refer to 11-6.) (SW2 on A-Control Service Tool: Refer to page 68.) ⑥ Replace outdoor power circuit board. ⑦ Replace outdoor controller circuit board.

Thermistors		Open detection	Short detection
Symbol	Name		
TH3	Thermistor <Outdoor pipe>	– 40℃ or below	90℃ or above
TH6	Thermistor <Outdoor 2-phase pipe>	– 40℃ or below	90℃ or above
TH7	Thermistor <Outdoor>	– 40℃ or below	90℃ or above
TH8	Thermistor <Heat sink> RP1.6-6VHA	– 27℃ or below	102℃ or above
TH8	Internal thermistor RP4-6YHA	– 35℃ or below	170℃ or above

Error Code	Meaning of error code and detection method	Case	Judgment and action
U6 (4250)	**Abnormality of power module** Check abnormality by driving power module in case overcurrent is detected. (UF or UP error condition)	① Outdoor stop valve is closed. ② Decrease of power supply voltage ③ Looseness, disconnection or converse of compressor wiring connection ④ Defective compressor ⑤ Defective outdoor power circuit board	① Open stop valve. ② Check facility of power supply. ③ Correct the wiring (U•V•W phase) to compressor. Refer to page 59 and 60. ④ Check compressor referring to 11-6. ⑤ Replace outdoor power circuit board.
U7 (1520)	**Abnormality of super heat due to low discharge temperature (RP1.6-3VHA)** Abnormal if discharge super heat is continuously detected less than or equal to 0℃ for 3 minutes even though linear expansion valve has minimum open pulse after compressor starts operating for 10 minutes. (RP1.6-3VHA only)	① Disconnection or loose connection of discharge temperature thermistor. (TH4) ② Defective holder of discharge temperature thermistor. ③ Disconnection or loose connection of linear expansion valve's coil. ④ Disconnection or loose connection of linear expansion valve's connector. ⑤ Defective linear expansion valve.	①② Check the installation conditions of discharge temperature thermistor (TH4). ③ Check the coil of linear expansion valve. Refer to page 51. ④ Check the connection or contact of LEV-A and LEV-B on outdoor controller circuit board. ⑤ Check linear expansion valve. Refer to 11-6.
U8 (4400)	**Abnormality in the outdoor fan motor (RP4-6YHA only)** The outdoor fan motor is considered to be abnormal if the rotational frequency of fan motor is abnormal when detected during operation. Fan motor rotational frequency is abnormal if; • 100 rpm or below detected continuously for 15 seconds at 20℃ or more outside air temperature • 50 rpm or below or 1500 rpm or more detected continuously for 1 minute.	① Failure in the operation of the DC fan motor ② Failure in the outdoor circuit controller board	① Check or replace the DC fan motor. ② Check the voltage of the outdoor circuit controller board during operation. ③ Replace the outdoor circuit controller board. (when the failure is still indicated even after performing the remedy ① above.)
U9 (4220)	**Abnormality such as overvoltage or voltage shortage and abnormal synchronous signal to main circuit** Abnormal if any of followings are detected during compressor operation; • Decrease of DC bus voltage to 310V (RP1.6-6VHA only) • Instantaneous decrease of DC bus voltage RP1.6-6VHA : 200V, RP4-6YHA : 350V • Increase of DC bus voltage to RP1.6-3VHA : 420V RP4-6VHA : 400V RP4-6YHA : 760V • Decrease of input current of outdoor unit to 0.5A only if operation frequency is more than or equal to 40Hz or compressor current is more than or equal to 5A.	① Decrease of power supply voltage ② Disconnection of compressor wiring ③ Defective 52C ④ Disconnection or loose connection of CN52C (RP1.6-3VHA only) ⑤ Defective PFC module of outdoor power board (RP1.6-3VHA only) ⑥ Defective ACT module (RP4-6VHA only) ⑦ Defective ACT module drive circuit of outdoor power circuit board (RP4-6VHA only) ⑧ Disconnection or loose connection of CNAF (RP4-6VHA only) ⑨ Defective outdoor converter circuit board (RP4-6YHA only) ⑩ Defective 52C drive circuit of outdoor controller circuit board (RP1.6-6VHA) ⑪ Disconnection or loose connection of CN5 on the outdoor power circuit board. ⑫ Defective 52C drive circuit of outdoor power circuit board. (RP4-6YHA only) ⑬ Disconnection or loose connection of CN2 on the outdoor power circuit board.	① Check the facility of power supply. ② Correct the wiring (U•V•W phase) to compressor. Refer to page 59 and 60. ③ Replace 52C. ④ Check CN52C wiring. ⑤ Replace outdoor power circuit board. (RP1.6-3VHA only) ⑥ Replace ACT module. (RP4-6VHA only) ⑦ Replace outdoor power circuit board. (RP4-6VHA only) ⑧ Check CNAF wiring. (RP4-6VHA only) ⑨ Replace outdoor converter circuit board. (RP4-6YHA only) ⑩ Replace outdoor controller circuit board. (RP1.6-6VHA only) ⑪ Check CN5 wiring on the outdoor power circuit board. Refer to page 59 and 60. ⑫ Replace outdoor power circuit board. (RP4-6YHA only) ⑬ Check CN2 wiring on the outdoor power circuit board. Refer to page 59 and 60.

Error Code	Meaning of error code and detection method	Case	Judgment and action
UF (4100)	**Compressor overcurrent interruption (When compressor locked)** Abnormal if overcurrent of DC bus or compressor is detected within 30 seconds after compressor starts operating.	① Stop valve is closed. ② Decrease of power supply voltage ③ Looseness, disconnection or converse of compressor wiring connection ④ Defective compressor ⑤ Defective outdoor power board	① Open stop valve. ② Check facility of power supply. ③ Correct the wiring (U•V•W phase) to compressor. Refer to page 59 and 60. ④ Check compressor. Refer to 11-6. ⑤ Replace outdoor power circuit board.
UH (5300)	**Current sensor error** Abnormal if current sensor detects –1.5A to 1.5A during compressor operation. (This error is ignored in case of test run mode.)	① Disconnection of compressor wiring ② Defective circuit of current sensor on outdoor power circuit board	① Correct the wiring (U•V•W phase) to compressor. Refer to page 59 and 60. ② Replace outdoor power circuit board.
UL (1300)	**Abnormal low pressure (63L worked)** Abnormal if 63L is worked (under-0.03MPa) during compressor operation. 63L: Low-pressure switch (RP4-6VHA, RP4-6YHA)	① Stop valve of outdoor unit is closed during operation. ② Disconnection or loose connection of connector (63L) on outdoor controller board ③ Disconnection or loose connection of 63L ④ Defective outdoor controller board ⑤ Leakage or shortage of refrigerant ⑥ Malfunction of linear expansion valve	① Check stop valve. ②~④ Put the power off and on again to check if F3 is displayed on restarting. If F3 is displayed, follow the F3 processing direction. ⑤ Correct to proper amount of refrigerant. ⑥ Check linear expansion valve. Refer to 11-6.
UP (4210)	**Compressor overcurrent interruption** Abnormal if overcurrent DC dc bus or compressor is detected after compressor starts operating for 30 seconds.	① Stop valve of outdoor unit is closed. ② Decrease of power supply voltage ③ Looseness, disconnection or converse of compressor wiring connection ④ Defective fan of indoor/outdoor units ⑤ Short cycle of indoor/outdoor units ⑥ Defective input circuit of outdoor controller board ⑦ Defective compressor	① Open stop valve. ② Check facility of power supply. ③ Correct the wiring (U•V•W phase) to compressor. Refer to page 59 and 60. ④ Check indoor/outdoor fan. ⑤ Solve short cycle. ⑥ Replace outdoor controller circuit board. ⑦ Check compressor. Refer to 11-6. ※ Before the replacement of the outdoor controller circuit board, disconnect the wiring to compressor from the outdoor power circuit board and check the output voltage among phases, U, V, W, during test run. No defect on board if voltage among phases (U-V, V-W and W-U) is same. Make sure to perform the voltage check with same performing frequency.

Error Code	Meaning of error code and detection method	Case	Judgment and action
E0 (No display)	**Remote controller communication error (Signal receiving error)** (1) Abnormal if any signal from IC of refrigerant address “0” could not be normally received for three minutes. (2) Abnormal if sub remote controller could not receive any signal for two minutes.	① Defective communication circuit of remote controller ② Defective communication circuit of indoor controller board of refrigerant address “0” ③ Noise has entered into transmission line of remote controller. ④ All remote controllers are set as “sub” remote controller. In this case, E4 is displayed at outdoor LED, and E0 is displayed at remote controller.	①~③ Diagnose remote controller. Take actions as follows according to diagnosis result. a) When “RC OK” is displayed, remote controllers have no problem. Put the power off, and on again to check. If, “H0” is displayed for four minutes or more, replace indoor controller board. b) When “RC NG” is displayed, replace remote controller. c) When “RC E3” or “ERC 00-66” is displayed, noise may be causing abnormality. ④ Set a remote controller to main, and the other to sub. ※ The descriptions above, ①-③, are for E0 and E3.
E3 (No display)	**Remote controller communication error (Transmitting error)** (1) Abnormal if sub remote controller could not find blank of transmission path for six seconds. (2) Abnormal if remote controller could not finish transmitting 30 times continuously.	① Defective communication circuit of remote controller ② Noise has entered into transmission line of remote controller. ③ Two remote controllers are set as "main." (In case of 2 remote controllers)	
E8 (6840)	**Indoor/outdoor unit communication error (Signal receiving error) (Outdoor unit)** (1) Abnormal if outdoor controller circuit board could not receive anything normally for three minutes.	① Contact failure of indoor/outdoor unit connecting wire. ② Defective communication circuit of outdoor controller circuit board. ③ Defective communication circuit of indoor controller board ④ Noise has entered into indoor/ outdoor unit connecting wire.	① Check disconnection or looseness of indoor/ outdoor unit connecting wire of indoor or outdoor units. ②~④ Put the power off, and on again to check. Replace indoor controller board or outdoor controller circuit board if abnormality is displayed again.
E9 (6841)	**Indoor/outdoor unit communication error (Transmitting error) (Outdoor unit)** (1) Abnormal if “0” receiving is detected 30 times continuously though outdoor controller circuit board has transmitted “1”. (2) Abnormal if outdoor controller circuit board could not find blank of transmission path for three minutes.	① Indoor/ outdoor unit connecting wire has contact failure. ② Defective communication circuit of outdoor controller circuit board. ③ Noise has entered power supply. ④ Noise has entered indoor/ outdoor unit connecting wire.	① Check disconnection or looseness of indoor/outdoor unit connecting wire. ②~④ Put the power off, and on again to check. Replace outdoor controller circuit board if abnormality is displayed again.
EF (6607 or 6608)	**Non defined error code** This code is displayed when non defined error code is received.	① Noise has entered transmission wire of remote controller. ② Noise has entered indoor/ outdoor unit connecting wire. ③ Outdoor unit is not a series of power-inverter. ④ Model name of remote controller is PAR-S25A.	①② Put the power off, and on again to check. Replace indoor controller board or outdoor controller circuit board if abnormality is displayed again. ③ Replace outdoor unit with power-inverter type outdoor unit. ④ Replace remote controller with MA remote controller.
Ed (0403)	**Serial communication error** 1.Abnormal if serial communication between outdoor controller circuit board and outdoor power circuit board is defective.	① Breaking of wire or contact failure of connector CN2 between the outdoor controller circuit board and the outdoor power circuit board. ② Breaking of wire or contact failure of connector CN4 between the outdoor controller circuit board and the outdoor power circuit board. ③ Defective communication circuit of outdoor power circuit board ④ Defective communication circuit of outdoor controller circuit board for outdoor power circuit board	①② Check connection of each connector CN2 and CN4 between the outdoor controller circuit board and the outdoor power circuit board. ③ Replace outdoor power circuit board. ④ Replace outdoor controller circuit board.
	2. Abnormal if communication between outdoor controller circuit board and M-NET board is not available.	① Breaking of wire or contact failure of connector between outdoor controller circuit board and M-NET board ② Contact failure of M-NET board power supply line ③ Noise has entered into M-NET transmission wire.	① Check disconnection, looseness, or breaking of connection wire between outdoor controller circuit board (CNMNT) and M-NET board (CN5). ② Check disconnection, looseness, or breaking of connection wire between outdoor controller circuit board(CNMNT) and M-NET board (CND). ③ Refer to (4) in “ 2-2. M-NET Wiring method ” on Service Technical Guide for OCT04.

Error Code	Meaning of error code and detection method	Case	Judgment and action
P8	**Abnormality of pipe temperature** <Cooling mode> Detected as abnormal when the pipe temperature is not in the cooling range 3 minutes later of compressor start and 6 minutes later of the liquid or condenser/evaporator pipe is out of cooling range. Note 1) It takes at least 9 min. to detect. Note 2) Abnormality P8 is not detected in drying mode. Cooling range : Indoor pipe temperature (TH2 or TH5) – intake temperature (TH1) ≦ -3 deg TH: Lower temperature between: liquid pipe temperature and condenser/ evaporator temperature <Heating mode> When 10 seconds have passed after the compressor starts operation and the hot adjustment mode has finished, the unit is detected as abnormal when condenser/evaporator pipe temperature is not in heating range within 20 minutes. Note 3) It takes at least 27 minutes to detect abnormality. Note 4) It excludes the period of defrosting (Detection restarts when defrosting mode is over) Heating range : 3 deg ≦ (Condenser/ Evaporator temperature(TH5) – intake temperature(TH1))	① Slight temperature difference between indoor room temperature and pipe <liquid or condenser / evaporator> temperature thermistor • Shortage of refrigerant • Disconnected holder of pipe <liquid or condenser / evaporator> thermistor • Defective refrigerant circuit ② Converse connection of extension pipe (on plural units connection) ③ Converse wiring of indoor/ outdoor unit connecting wire (on plural units connection) ④ Defective detection of indoor room temperature and pipe <condenser / evaporator> temperature thermistor ⑤ Stop valve is not opened completely.	①~④ Check pipe <liquid or condenser / evaporator> temperature with room temperature display on remote controller and outdoor controller circuit board. Pipe <liquid or condenser / evaporator> temperature display is indicated by setting SW2 of outdoor controller circuit board as follows. (Conduct temperature check with outdoor controller circuit board after connecting 'A-Control Service Tool(PAC-SK52ST)'.)  A-Control Service Tool SW2 setting ②③Check converse connection of extension pipe or converse wiring of indoor/outdoor unit connecting wire.

<M-NET communication error>

(Note) "Indoor unit" in the text indicates M-NET board in outdoor unit.

Error Code	Meaning of error code and detection method	Case	Judgment and action
A0 (6600)	**Address duplicate definition** This error is displayed when transmission from the units of same address is detected. Note) The address and attribute displayed at remote controller indicate the controller that detected abnormality.	① There are two or more same address of controller of outdoor unit, indoor unit, FRESH MASTER, or LOSSNAY. ② Noise has entered into transmission signal and signal was transformed.	Search the unit with same address as abnormality occurred. If the same address is found, shut of the power supply of outdoor unit and indoor unit and FRESH MASTER or LOSSNAY at the same time for two minutes or more after the address is corrected, and put the power on again. Check transmission wave form or noise on transmission wire.
A2 (6602)	**Hard ware error of transmission processor** Transmission processor intended to transmit "0", but "1" appeared on transmission wire. Note) The address and attribute display at remote controller indicate the controller that detected abnormality.	① Error is detected if wave form is transformed when wiring works of transmission wire of outdoor unit, indoor unit, FRESH MASTER or LOSSNAY are done, or polarity is changed with the power on and transmission data collide each other. ② Defective transmitting receiving circuit of transmission processor ③ Transmission data is changed by the noise on transmission.	① If the works of transmission wire is done with the power on, shut off the power supply of outdoor unit and indoor unit and FRESH MASTER or LOSSNAY at the same time for two minutes or more, and put the power on again. ② Check transmission wave form or noise on transmission wire.
A3 (6603)	**BUS BUSY** 1. Over error by collision damage Abnormal if transmitting is not possible for 8-10 minutes continuously because of collision of transmission. 2. Data could not reach transmission wire for 8-10 minutes continuously because of noise or etc. Note) The address and attribute displayed at remote controller indicate the controller that detected abnormality.	① Transmission processor could not transmit because short cycle voltage of noise and the like have entered into transmission wire continuously. ② Transmission quantity has increased and transmission is not possible because there was wiring mistake of terminal block for transmission wire (TB3) and terminal block for central control (TB7) in outdoor unit. ③ Transmission are mixed with others and occupation rate on transmission wire rose because of defective repeater (a function to connector or disconnect transmission of control and central control system) of outdoor unit, then abnormality is detected.	① Check if transmission wire of indoor unit, FRESH MASTER, LOSSNAY, or remote controller is not connected to terminal block for central control (TB7) of outdoor unit. ② Check if transmission wore of indoor unit, FRESH MASTER or LOSSNAY is not connected to terminal block for transmission wire of outdoor unit. ③ Check if terminal block for transmission wire (TB3) and terminal block for central control (TB7) is not connected. ④ Check transmission wave form or noise on transmission wire.

Error Code	Meaning of error code and detection method	Case	Judgment and action
A6 (6606)	**Communication error with communication processor** Defective communication between unit processor and transmission processor Note) The address and attribute display at remote controller indicate the controller that detected abnormality.	① Data of transmission processor or unit processor is not transmitted normally because of accidental trouble such as noise or thunder surge. ② Address forwarding from unit processor is not transmitted normally because of defective transmission processor hardware.	Shut of the power supply of outdoor unit and indoor unit and FRESH MASTER or LOSSNAY at the same time for two minutes or more, and put the power on again. System returns normally if abnormality was accidental malfunction. If the same abnormality generates again, abnormality-generated controller may be defective.
A7 (6607)	**NO ACK signal** 1. Transmitting side controller detects abnormal if a massage was transmitted but there is no reply (ACK) that a massage was received. Transmitting side detects abnormality every 30 seconds, six times continuously. Note) The address and attribute displayed at remote controller is indicate the controller that did not reply (ACK).	Common factor that has no relation with abnormality source. ① The unit of former address does not exist as address switch has changed while the unit was energized. ② Extinction of transmission wire voltage and signal is caused by over-range transmission wire. • Maximum distance ·····200m • Remote controller line ··(12m) ③ Extinction of transmission wire voltage and signal is caused by type-unmatched transmission wire. Type ····· With shield wire- CVVS, CPEVS With normal wire (no shield)- VCTF, VCTFK, CVV CVS, VVR, VVF, VCT Diameter···1.25mm² or more ④ Extinction of transmission wire voltage and signal is caused by over-numbered units. ⑤ Accidental malfunction of abnormality-detected controller (noise, thunder surge) ⑥ Defective of abnormality-generated controller	**Always try the followings when the error "A7" occurs.** ① Shut off the power supply of outdoor unit and indoor unit and FRESH MASTER or LOSSNAY at the same time for two minutes or more, and put the power on again. If malfunction was accidental, the unit returns to normal. ② Check address switch of abnormality-generated address. ③ Check disconnection or looseness of abnormality-generated or abnormality-detected transmission wire (terminal block and connector) ④ Check if tolerance range of transmission wire is not exceeded. ⑤ Check if type of transmission wire is correct or not. If there were some trouble of ①-⑤ above, repair the defective, then shut off the power supply of outdoor unit and indoor unit and FRESH MASTER or LOSSNAY at the same time for two minutes or more, and put the power on again. • If there was no trouble with ①-⑤ above in single refrigerant system (one outdoor unit), controller of displayed address or attribute is defective. • If there was no trouble with ①-⑤ above in different refrigerant system (two or more outdoor units), judge with ⑥. ⑥ If address of abnormality source is the address that should not exist, there is the unit that memorizes nonexistent address information. Delete useless address information with manual setting function of remote controller. Only the system FRESH MASTER or LOSSNAY are connected to, or the system that is equipped with group setting of different refrigerant system. If there was no trouble with ①-⑥ above, replace the controller board of displayed address or attribute. If the unit does not return normally, multi-controller board of outdoor unit may be defective (repeater circuit). Replace multi-controller board one by one to check if the unit returns normally.
	2. If displayed address or attribute is outdoor unit, Indoor unit detects abnormality when indoor unit transmitted to outdoor unit and there was no reply (ACK).	① Contact failure of transmission wire of outdoor unit or indoor unit ② Disconnection of transmission connector (CN2M) of outdoor unit ③ Defective transmitting receiving circuit of outdoor unit or indoor unit	
	3. If displayed address or attribute is indoor unit, Remote controller detects abnormality when remote controller transmitted to indoor unit and there was no reply (ACK).	① During group operation with indoor unit of multi- refrigerant system, if remote controller transmit to indoor unit while outdoor unit power supply of one refrigerant system is put off or within two minutes of restart, abnormality is detected. ② Contact failure of transmission wire of remote controller or indoor unit ③ Disconnection of transmission connector (CN2M) of indoor unit ④ Defective transmitting receiving circuit of indoor unit or remote controller	

Continued to the next page.

From the previous page.

Error Code	Meaning of error code and detection method	Case	Judgment and action
A7 (6607)	4. If displayed address or attribute is remote controller, Indoor unit detects abnormality when indoor unit transmitted to remote controller and there was no reply (ACK).	① During group operation with indoor unit of multi- refrigerant system, if indoor unit transmit to remote controller while outdoor unit power supply of one refrigerant system is put off or within two minutes of restart, abnormality is detected. ② Contact failure of transmission wire of remote controller or indoor unit ③ Disconnection of transmission connector (CN2M) of indoor unit ④ Defective transmitting receiving circuit of indoor unit or remote controller	**Same as mentioned in "A7" of the previous page.**
	5. If displayed address or attribute is FRESH MASTER, Indoor unit detects abnormality when indoor unit transmitted to FRESH MASTER and there was no reply (ACK).	① During sequential operation of indoor unit and FRESH MASTER of other refrigerant system, if indoor unit transmits to FRESH MASTER while outdoor unit power supply of same refrigerant system with FRESH MASTER is put off or within two minutes of restart, abnormality is detected. ② Contact failure of transmission wire of indoor unit or FRESH MASTER ③ Disconnection of transmission connector (CN2M) of indoor unit or FRESH MASTER ④ Defective transmitting receiving circuit of indoor unit or FRESH MASTER	
	6. If displayed address or attribute is LOSSNAY, Indoor unit detects abnormality when indoor unit transmitted to LOSSNAY and there was no reply (ACK).	① If the power supply of LOSSNAY is off, indoor unit detects abnormality when it transmits to LOSSNAY. ② During sequential operation of indoor unit and LOSSNAY of other refrigerant system, if indoor unit transmits to LOSSNAY while outdoor unit power supply of same refrigerant system with LOSSNAY is put off or within two minutes of restart, abnormality is detected. ③ Contact failure of transmission wire of indoor unit of LOSSNAY ④ Disconnection of transmission connector (CN2M) of indoor unit ⑤ Defective transmitting receiving circuit of indoor unit or LOSSNAY	
	7. If displayed address or attribute is nonexistent,	① The unit of former address does not exist as address switch has changed while the unit was energized. ② Abnormality is detected when indoor unit transmitted because the address of FRESH MASTER and LOSSNAY are changed after sequential operation of FRESH MASTER and LOSSNAY by remote controller.	

Error Code	Meaning of error code and detection method	Case	Judgment and action
A8 (6608)	**M-NET•NO RESPONSE** Abnormal if a massage was transmitted and there were reply (ACK) that massage was received, but response command does not return. Transmitting side detects abnormality every 30 seconds, six times continuously. Note) The address and attribute displayed at remote controller is indicate the controller that did not reply (ACK).	① Transmitting condition is repeated fault because of noise and the like. ② Extension of transmission wire voltage and signal is caused by over-range transmission wire. • Maximum distance ·····200m • Remote controller line ··(12m) ③ Extension of transmission wire voltage and signal is caused by type-unmatched transmission wire. Type ····· With shield wire- CVVS, CPEVS With normal wire (no shield)- VCTF, VCTFK, CVV CVS, VVR, VVF, VCT Diameter···1.25mm^2 or more ④ Accidental malfunction of abnormality-generated controller	① Check transmission wave form or noise on transmission wire. ② Shut off the power supply of outdoor unit and indoor unit and FRESH MASTER or LOSSNAY at the same time for two minutes or more, and put the power on again. If malfunction was accidental, the unit returns to normal. If the same abnormality generates again, controller of displayed address and attribute may be defective.

11-5. TROUBLESHOOTING BY INFERIOR PHENOMENA

Phenomena	Factor	Countermeasure
1. Remote controller display does not work.	①DC12V is not supplied to remote controller. (Power supply display ⦿ is not indicated on LCD.) ②DC12~15V is supplied to remote controller, however, no display is indicated. • "H0" is not displayed. • "H0" is displayed.	①Check LED2 on indoor controller board. (1) When LED2 is lit. Check the remote controller wiring for breaking or contact failure. (2) When LED2 is blinking. Check short circuit of remote controller wiring. (3) When LED2 is not lit. Refer to No.3 below. ②Check the following. • Failure of remote controller if "H0" is not displayed • Refer to No.2 below if "H0" is displayed.
2. "H0" display is remained on the remote controller.	①At longest 2 minutes after the power supply "H0" is displayed to start up. ②Communication error between the remote controller and indoor unit ③Communication error between the indoor and outdoor unit ④Outdoor unit protection device connector is open.	①Normal operation ②Self-diagnosis of remote controller ③"H0" is displayed for 6 minutes at most. in case of indoor/outdoor unit communication error. Check LED3 on indoor controller board. (1)When LED3 is not blinking. Check indoor/outdoor connecting wire for mis-wiring. (Converse wiring of S1 and S2, or break of S3 wiring.) (2)When LED3 is blinking. Indoor/outdoor connecting wire is normal. ④Check LED display on outdoor controller circuit board. Refer to page 62 and 63. Check protection device connector (63L and 63H) for contact failure. Refer to 11-9.
3. When pressing the remote controller operation switch the OPERATION display is appeared but it will be turned off soon.	①After cancelling to select function from the remote controller, the remote controller operation switch will be not accepted for approx. 30 seconds.	①Normal operation

Phenomena	Factor	Countermeasure
4. Even controlling by the wireless remote controller no beep is heard and the unit does not start operating. Operation display is indicated on wireless remote controller.	①The pair number settings of the wireless remote controller and indoor controller board are mismatched.	①Check the pair number settings.
5. When operating by the wireless remote controller, beep sound is heard, however, unit does not start operating.	①No operation for 2 minutes at most after the power supply ON. ②Hand-held remote controller operation is prohibited. • Remote controlling adaptor is connected to CN32 on the indoor controller board. • Hand-held remote controller operation is prohibited by centralised controller etc. since it is connected to MELANS. ③Factor of No.2 above.	①Normal operation ②Normal operation ③Check the details of No.2 above.
6. Remote controller display works normally and the unit performs cooling operation, however, the capacity cannot be fully obtained. (The air does not cool well.)	①Refrigerant shortage ②Filter clogging ③Heat exchanger clogging ④Air duct short cycle	①• If refrigerant leaks, discharging temperature rises and LEV opening increases. Inspect leakage by checking the temperature and opening. • Check pipe connections for gas leakage. ②Open suction grill and check the filter. Clean the filter by removing dirt or dust on it. ③• If the filter is clogged, indoor pipe temperature rises and discharging pressure increases. Check if heat exchanger is clogged by inspecting discharging pres sure. • Clean the heat exchanger. ④Remove the shield.
7. Remote controller display works normally and the unit performs heating operation, however, the capacity cannot be fully obtained.	①Linear expansion valve fault Opening cannot be adjusted well due to linear expansion valve fault. ②Refrigerant shortage ③Lack of insulation for refrigerant piping ④Filter clogging ⑤Heat exchanger clogging ⑥Air duct short cycle ⑦Bypass circuit of outdoor unit fault	①• Discharging temperature and indoor heat exchanger temperature does not rise. Inspect the failure by checking discharging pressure. • Replace linear expansion valve. ②• If refrigerant leaks, discharging tempera ture rises and LEV opening increases. Inspect leakage by checking the temperature and opening. • Check pipe connections for gas leakage. ③Check the insulation. ④Open suction grill and check the filter. Clean the filter by removing dirt or dust on it. ⑤• If the filter is clogged, indoor pipe temperature rises and discharging pressure increases. Check if heat exchanger is clogged by inspecting discharging pressure. • Clean the heat exchanger. ⑥Remove the shield. ⑦Check refrigerant system during operation.
8. ①For 3 minutes after temperature adjuster turns off, the compressor will not start operating even if temperature adjuster is turned on. ②For 3 minutes after temperature adjuster turns on, the compressor will not stop operating even if temperature adjuster is turned off. (Compressor stops operating immediately when turning off by the remote controller.)	①②Normal operation (For protection of compressor)	①②Normal operation

11-6. HOW TO CHECK THE PARTS

PUHZ-RP1.6HA PUHZ-RP2.5VHA$_1$ PUHZ-RP4VHA PUHZ-RP5VHA$_1$ PUHZ-RP4YHA
PUHZ-RP2VHA PUHZ-RP3VHA PUHZ-RP4VHA$_1$ PUHZ-RP6VHA PUHZ-RP5YHA
PUHZ-RP2.5VHA PUHZ-RP3VHA$_1$ PUHZ-RP5VHA PUHZ-RP6VHA$_1$ PUHZ-RP6YHA

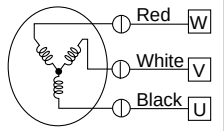
Parts name / Check points

Thermistor (TH3) <Outdoor pipe>
Thermistor (TH4) <Discharge>
Thermistor (TH6) <Outdoor 2-phase pipe>
Thermistor (TH7) <Outdoor>
Thermistor (TH8) <Heat sink>

Disconnect the connector then measure the resistance using a tester.
(Surrounding temperature 10℃~30℃)

	Normal	Abnormal
TH4	160kΩ~410kΩ	Open or short
TH3 TH6 TH7	4.3kΩ~9.6kΩ	
TH8	39kΩ~105kΩ	

Fan motor(MF1,MF2)



Pin number of relay connector is different from that motor connector

Measure the resistance between the terminals using a tester. (Winding temperature 20℃)

Relay connector	Normal			Abnormal
	RP1.6V, 2V	RP2.5-6V	RP4-6Y	
Red — Black	66.5±3.3Ω	15.1±0.5Ω	※	Open or short
Black — White				
White — Red				

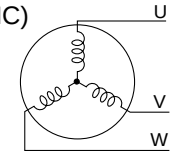
※ Refer to the next page for how to check the contact failure or how to measure the voltage at test point.

Solenoid valve coil <Four-way valve> (21S4)

Measure the resistance between the terminals using a tester.
(Surrounding temperature 20℃)

Normal		Abnormal
RP1.6-3V	RP4-6V	Open or short
2350±170Ω	1370±100Ω	

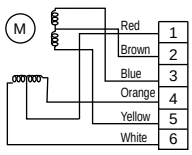
Motor for compressor (MC)



Measure the resistance between the terminals using a tester.
(Winding temperature 20℃)

Normal				Abnormal
RP1.6V, 2V	RP2.5V, 3V	RP4-6V	RP4-6Y	Open or short
0.300Ω~0.340Ω	0.865Ω~0.895Ω	0.266Ω	1.064Ω	

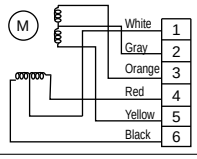
Linear expansion valve (LEV(A),LEV(B))



Disconnect the connector then measure the resistance using a tester.
(Winding temperature 20℃)

Normal				Abnormal
Red - White	Red - Orange	Brown - Yellow	Brown - Blue	Open or short
46±4Ω				

Linear expansion valve (LEV) RP4-RP6YHA only



Disconnect the connector then measure the resistance using a tester.
(Winding temperature 20℃)

Normal				Abnormal
White - Black	White - Red	Gray - Yellow	Gray - Orange	Open or short
46±3Ω				

Solenoid valve coil <Bypass valve> (SV) RP2.5-6 only

Measure the resistance between the terminals using a tester.
(Surrounding temperature 20℃)

Normal	Abnormal
1197±10Ω	Open or short

Check method of DC fan motor (fan motor / outdoor controller circuit board)

① Notes

· High voltage is applied to the connecter (CNF1, 2) for the fan motor. Give attention to the service.

· Do not pull out the connector (CNF1, 2) for the motor with the power supply on.
(It causes trouble of the outdoor controller circuit board and fan motor.)

② Self check

Symptom : The outdoor fan cannot turn around.

Wiring contact check
Contact of fan motor connector (CNF1, CNF2)

↓

Is there no contact failure? → No → Wiring recovery

↓Yes

Power supply check
Measure the voltage in the outdoor controller circuit board.
TEST POINT ① : V_{DC} (between 1 (+) and 4 (-) of the fan connector): Vdc DC250-330V
TEST POINT ② : V_{CC} (between 5 (+) and 4 (-) of the fan connector): Vcc DC15V
TEST POINT ③ : V_{SP} (between 6 (+) and 4 (-) of the fan connector): Vsp DC1 to 6.5V
[The voltage of V_{SP} is a value during the fan motor operation.
In the case that the fan motor off, the voltages is 0V.]

↓

Is the voltage normal? → No→ Trouble of the outdoor controller circuit board
Replacement of the outdoor controller circuit board

↓Yes

Fan motor position sensor signal check
Measure the voltage at the TEST POINT ④ (VFG), between 7 (+) and 4 (-) of the fan connector, while slowly turning the fan motor more than one revolution.

↓

Dose the voltage repeat DC0V and DC15V? → No → Trouble of the fan motor
Replacement of the motor

↓Yes

Replacement of the outdoor controller circuit board

11-7. HOW TO CHECK THE COMPONENTS

<Thermistor feature chart>

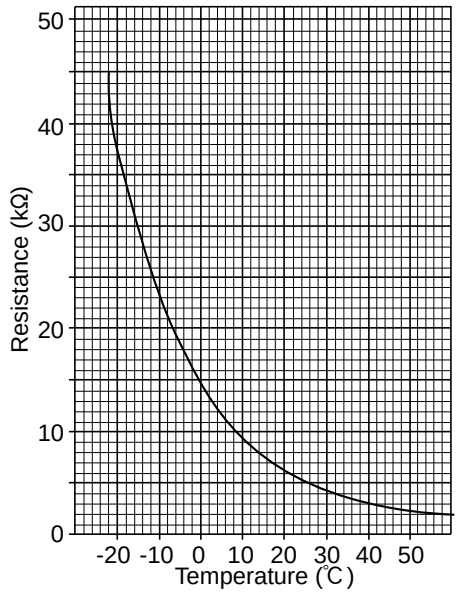
Low temperature thermistors

- Thermistor <Outdoor pipe> (TH3)
- Thermistor <Outdoor 2-phase pipe> (TH6)
- Thermistor <Outdoor> (TH7)

Thermistor R0 = 15kΩ ± 3%
B constant = 3480 ± 2%

$$R_t = 15\exp\{3480(\frac{1}{273+t} - \frac{1}{273})\}$$

0℃	15kΩ	30℃	4.3kΩ
10℃	9.6kΩ	40℃	3.0kΩ
20℃	6.3kΩ		
25℃	5.2kΩ		



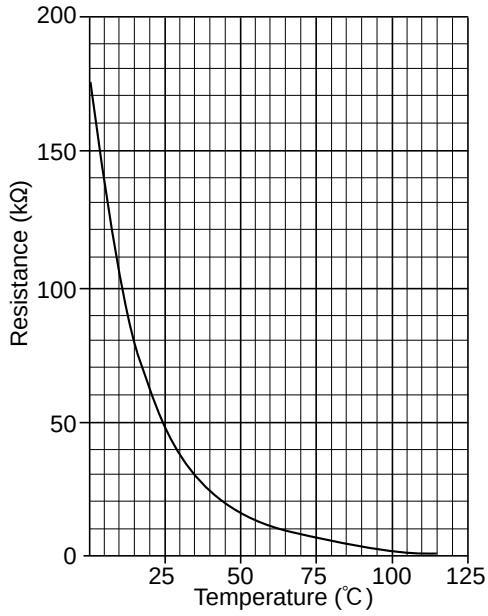
Medium temperature thermistor

- Thermistor <Heat sink> (TH8)
  ※RP1.6 – RP6V only

Thermistor R50 = 17kΩ ± 2%
B constant = 4150 ± 3%

$$R_t = 17\exp\{4150(\frac{1}{273+t} - \frac{1}{323})\}$$

0℃	180kΩ
25℃	50kΩ
50℃	17kΩ
70℃	8kΩ
90℃	4kΩ



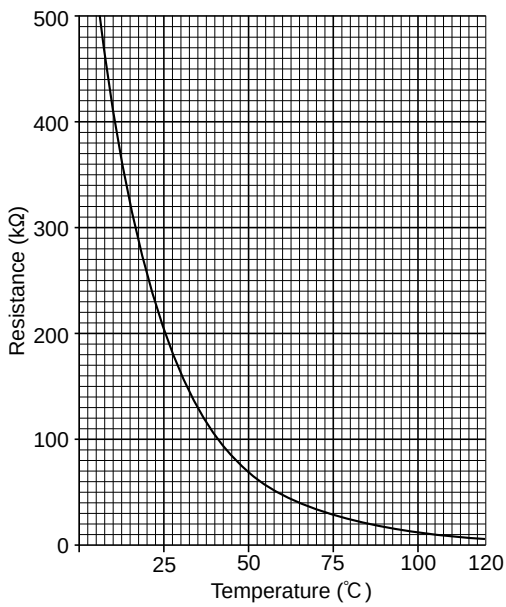
High temperature thermistor

- Thermistor <Discharge> (TH4)

Thermistor R120 = 7.465kΩ ± 2%
B constant = 4057 ± 2%

$$R_t = 7.465\exp\{4057(\frac{1}{273+t} - \frac{1}{393})\}$$

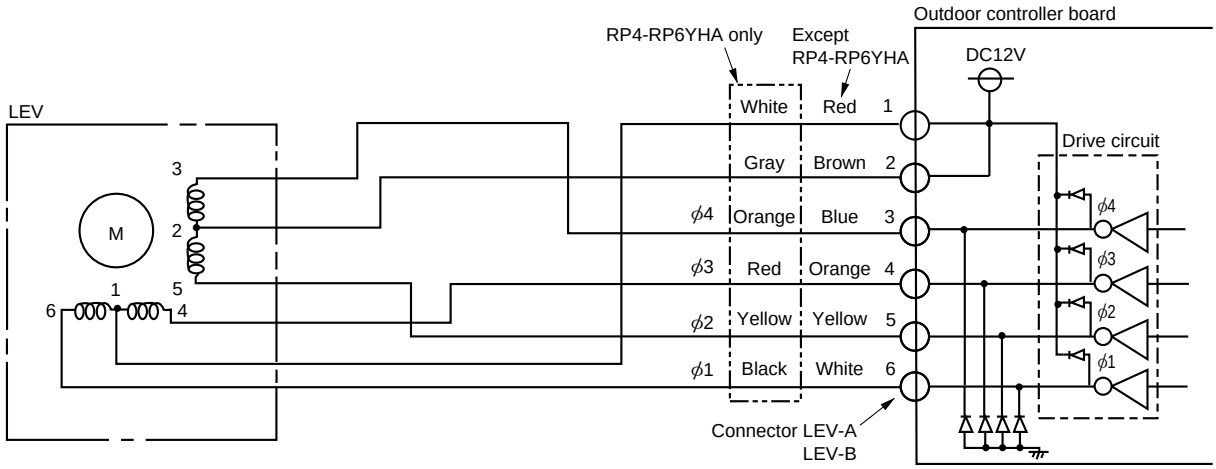
20℃	250kΩ	70℃	34kΩ
30℃	160kΩ	80℃	24kΩ
40℃	104kΩ	90℃	17.5kΩ
50℃	70kΩ	100℃	13.0kΩ
60℃	48kΩ	110℃	9.8kΩ



Linear expansion valve

(1) Operation summary of the linear expansion valve.

• Linear expansion valve open/close through stepping motor after receiving the pulse signal from the outdoor controller board.
• Valve position can be changed in proportion to the number of pulse signal.
<Connection between the indoor controller board and the linear expansion valve>



<Output pulse signal and the valve operation>

Output (Phase)	Output							
	1	2	3	4	5	6	7	8
ϕ1	ON	ON	OFF	OFF	OFF	OFF	OFF	ON
ϕ2	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
ϕ3	OFF	OFF	OFF	ON	ON	ON	OFF	OFF
ϕ4	OFF	OFF	OFF	OFF	OFF	ON	ON	ON

Opening a valve : 8 → 7 → 6 → 5 → 4 → 3 → 2 → 1 → 8
Closing a valve : 1 → 2 → 3 → 4 → 5 → 6 → 7 → 8 → 1

The output pulse shifts in above order.

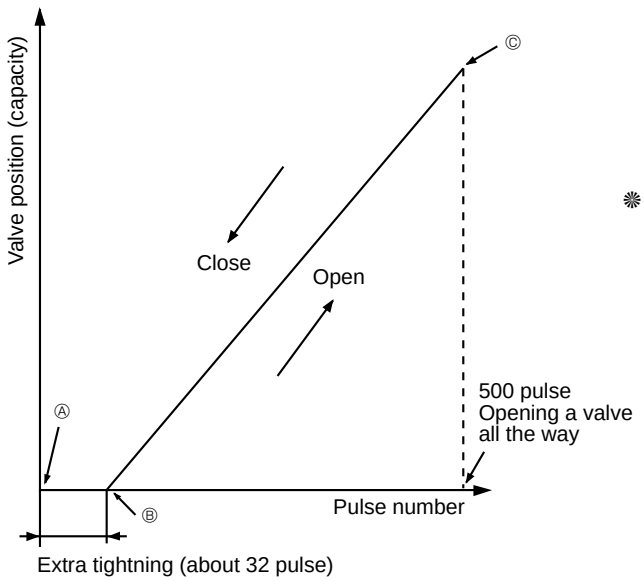
✵ 1. When linear expansion valve operation stops, all output phase become OFF.

✵ When the switch is turned on, 700 pulse closing valve signal will be sent till it goes to Ⓐ point in order to define the valve position. (The pulse signal is being sent for about 20 seconds.)

When the valve moves smoothly, there is no noise or vibration occurring from the linear expansion valve : however, when the pulse number moves from Ⓑ to Ⓐ or when the valve is locked, more noise can be heard than normal situation.
No noise is heard when the pulse number moves from Ⓑ to Ⓐ in case coil is burn out or motor is locked by open-phase.

✵ Noise can be detected by placing the ear against the screw driver handle while putting the screw driver to the linear expansion valve.

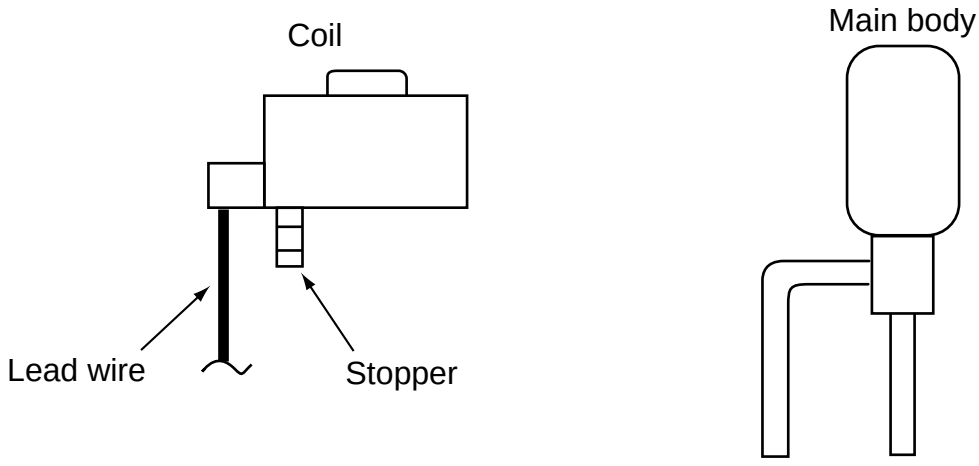
(2) Linear expansion valve operation



(3) How to attach and detach the coil of linear expansion valve (Except RP4-RP6YHA)

<Composition>

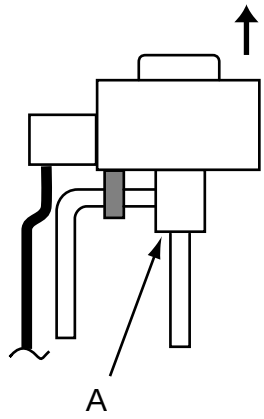
Linear expansion valve is separable into the main body and the coil as shown in the diagram below.



<How to detach the coil>

Hold the lower part of the main body (shown as A) firmly so that the main body does not move and detach the coil by pulling it upward.

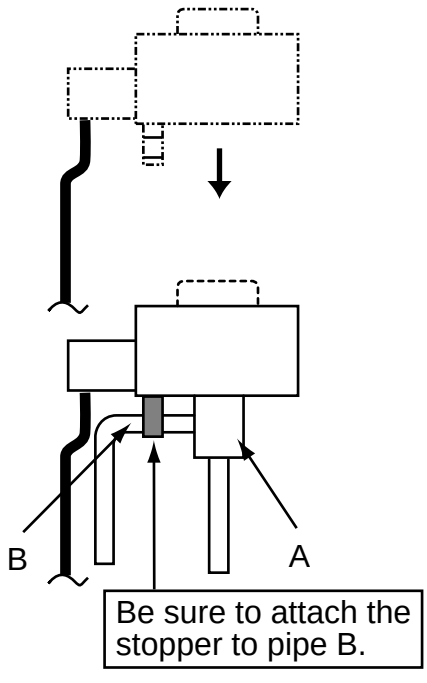
Be sure to detach the coil holding main body firmly. Otherwise pipes can bend due to pressure.



<How to attach the coil>

Hold the lower part of the main body (shown as A) firmly so that the main body does not move and attach the coil by inserting it downward into the main body. Then securely attach the coil stopper to pipe B. (At this time, be careful that stress is not added to lead wire and main body is not wound by lead wire.) If the stopper is not firmly attached to pipe B, coil may be detached from the main body and that can cause defective operation of linear expansion valve.

To prevent piping stress, be sure to attach the coil holding the main body of linear expansion valve firmly. Otherwise pipe may break.



11-8. EMERGENCY OPERATION

(1) When the error codes shown below are displayed on outdoor unit or microcomputer for wired remote controller or indoor unit has a failure, but no other problems are found, emergency operation will be available by setting the emergency operation switch (SWE) to ON and short-circuiting the connector (CN31) on outdoor controller board.

●When following abnormalities occur, emergency operation will be available.

Error code	Inspected content
U4	Open/short of pipe thermistor (TH3/TH6)
E8	Indoor/outdoor unit communication error •Signal receiving error (Outdoor unit)
E9	Indoor/outdoor unit communication error •Transmitting error (Indoor unit)
E0 ~ E7	Communication error other than outdoor unit
Ed	Communicaiton error between outdoor controller board and M-NET board (Serial communication error)

(2) Check the following items and cautions for emergency operation

①Make sure that there is no abnormality in outdoor unit other than the above abnormalities. (Emergency operation will not be available when error code other than the above are indicated.)

②For emergency operation, it is necessary to set the emergency operation switch (SWE) on indoor controller board. Refer to the electrical wiring diagram of indoor unit for how to set the indoor unit.)

③During emergency operation, the air-conditioner will continuously be operated by supplying power and stopping it: It can not be turned on or off by remote control, and temperature control is not possible.

④Do not perform emergency heating operation for an extended period of time: If the outdoor unit starts defrosting during this period, cold air will blow out from the indoor unit.

⑤Do not perform emergency cooling operation for more than 10 hours: Neglecting this could result in freezing the heat exchanger in indoor unit.

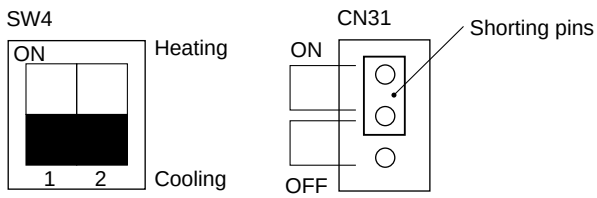
(3) Emergency operation procedure

①Turn the main power supply off.

②Turn on the emergency operation switch (SWE) on indoor controller board.

③Set the shorting pins of emergency operation connector (CN31) on outdoor controller board to ON.

④Use SW4-2 on outdoor controller board to set the operation mode (cooling or heating). (SW4-1 is not used.)



⑤Turning the main power supply on will start the emergency operation.

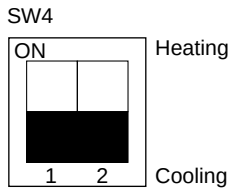
(4) Releasing emergency operation

①Turn the main power supply off.

②Set the emergency operation switch (SWE) on indoor controller board to OFF.

③Set the shorting pins of emergency operation connector (CN31) on outdoor controller board to OFF.

④Set SW4-2 on outdoor controller board as shown in the right.

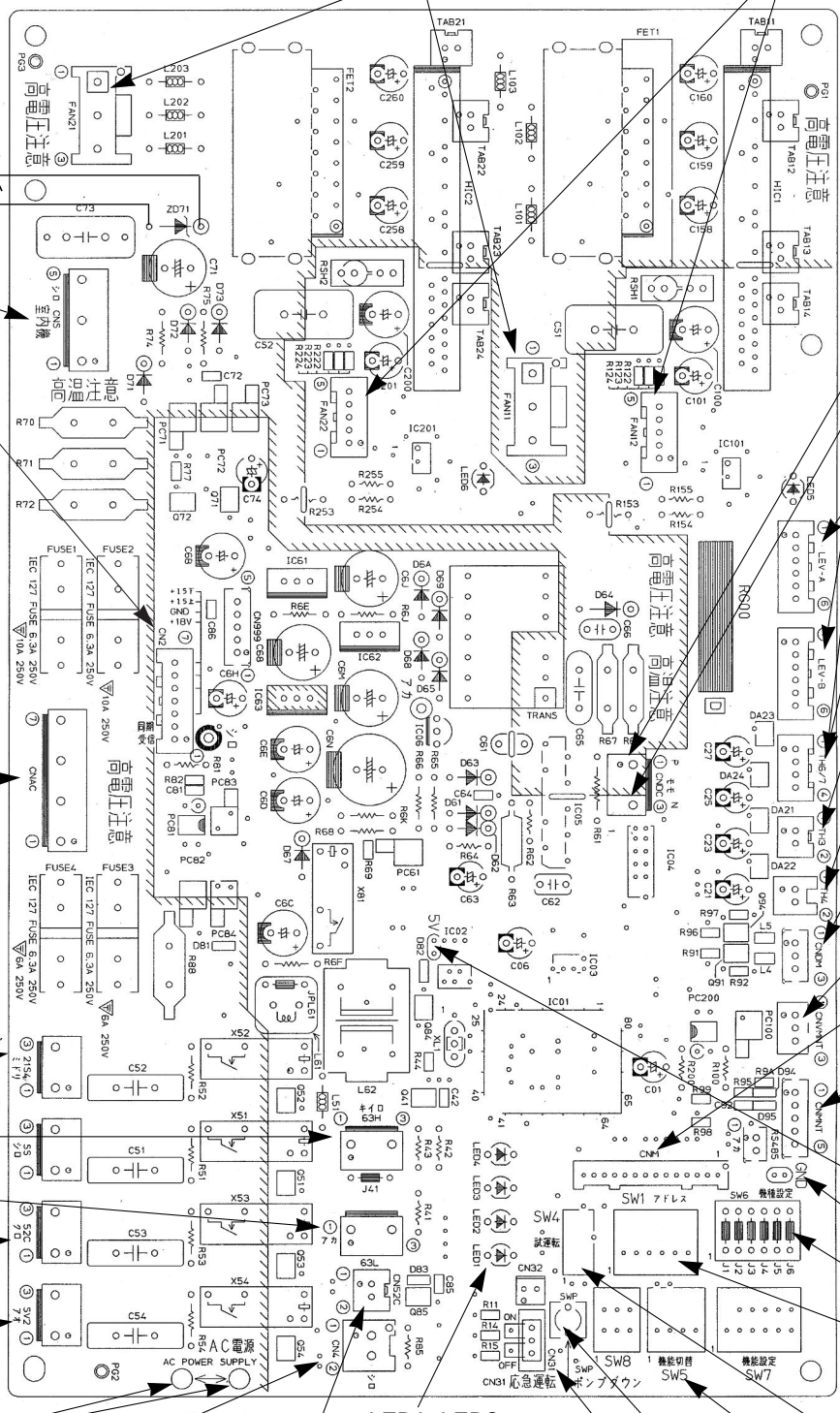


※If shorting pins are not set on emergency operation connector (CN31), the setting remains OFF.

11-9. TEST POINT DIAGRAM

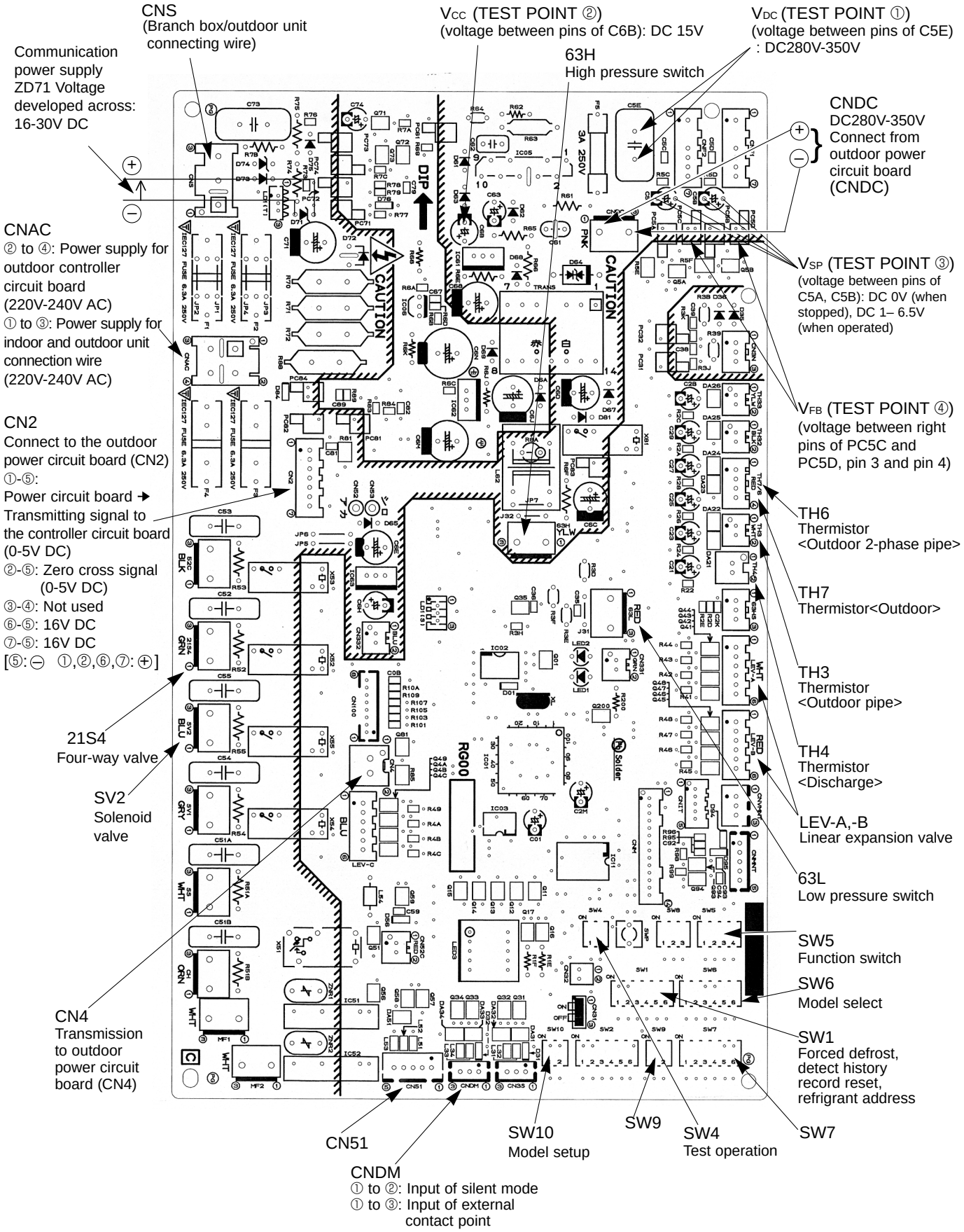
Outdoor controller circuit board

PUHZ-RP1.6VHA PUHZ-RP4VHA
PUHZ-RP2VHA PUHZ-RP4VHA$_1$
PUHZ-RP2.5VHA PUHZ-RP5VHA
PUHZ-RP2.5VHA$_1$ PUHZ-RP5VHA$_1$
PUHZ-RP3VHA PUHZ-RP6VHA
PUHZ-RP3VHA$_1$ PUHZ-RP6VHA$_1$

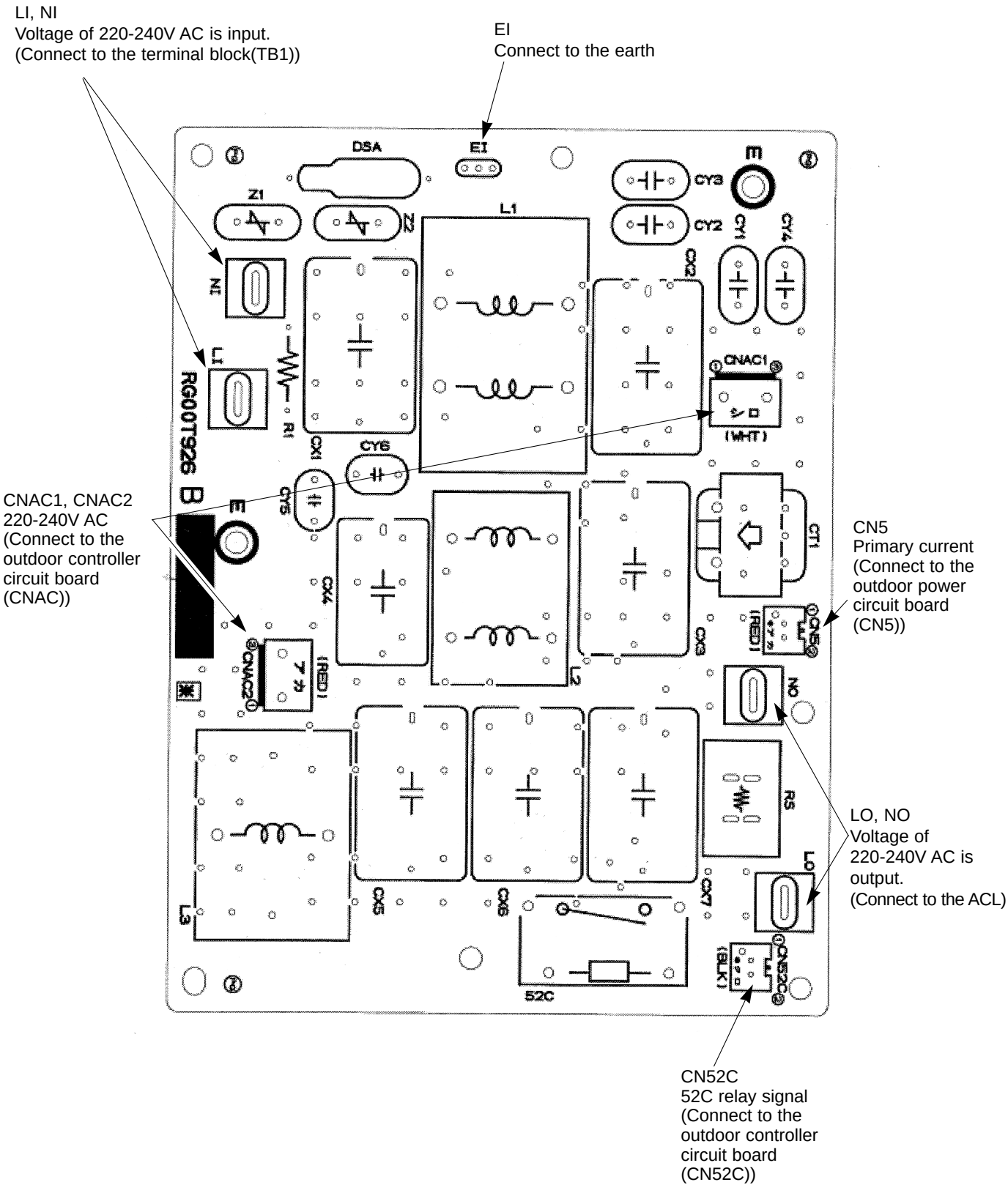


Outdoor controller circuit board
PUHZ-RP4YHA
PUHZ-RP5YHA
PUHZ-RP6YHA

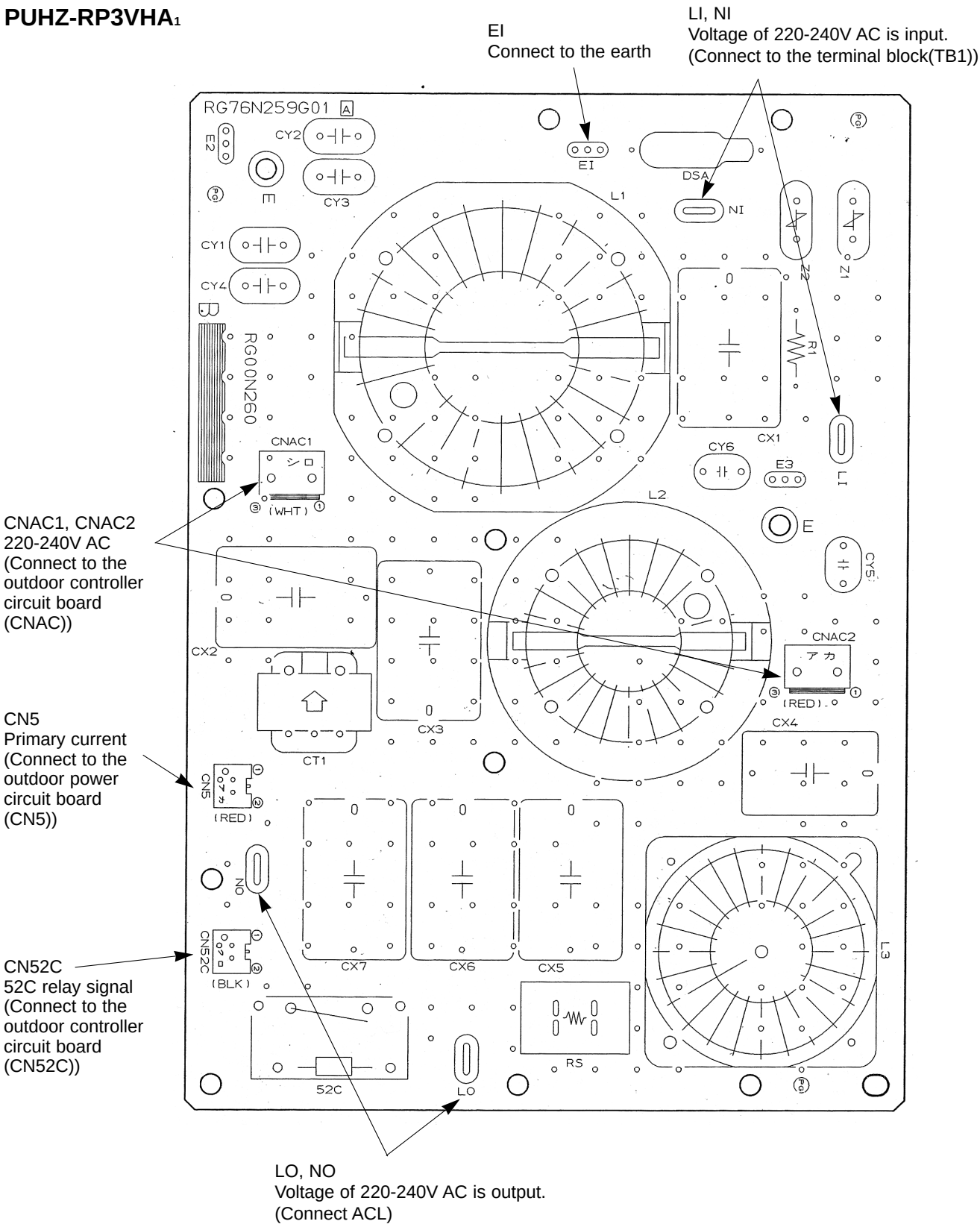
<CAUTION> TEST POINT① is high voltage.



Outdoor noise filter circuit board
PUHZ-RP1.6VHA
PUHZ-RP2VHA

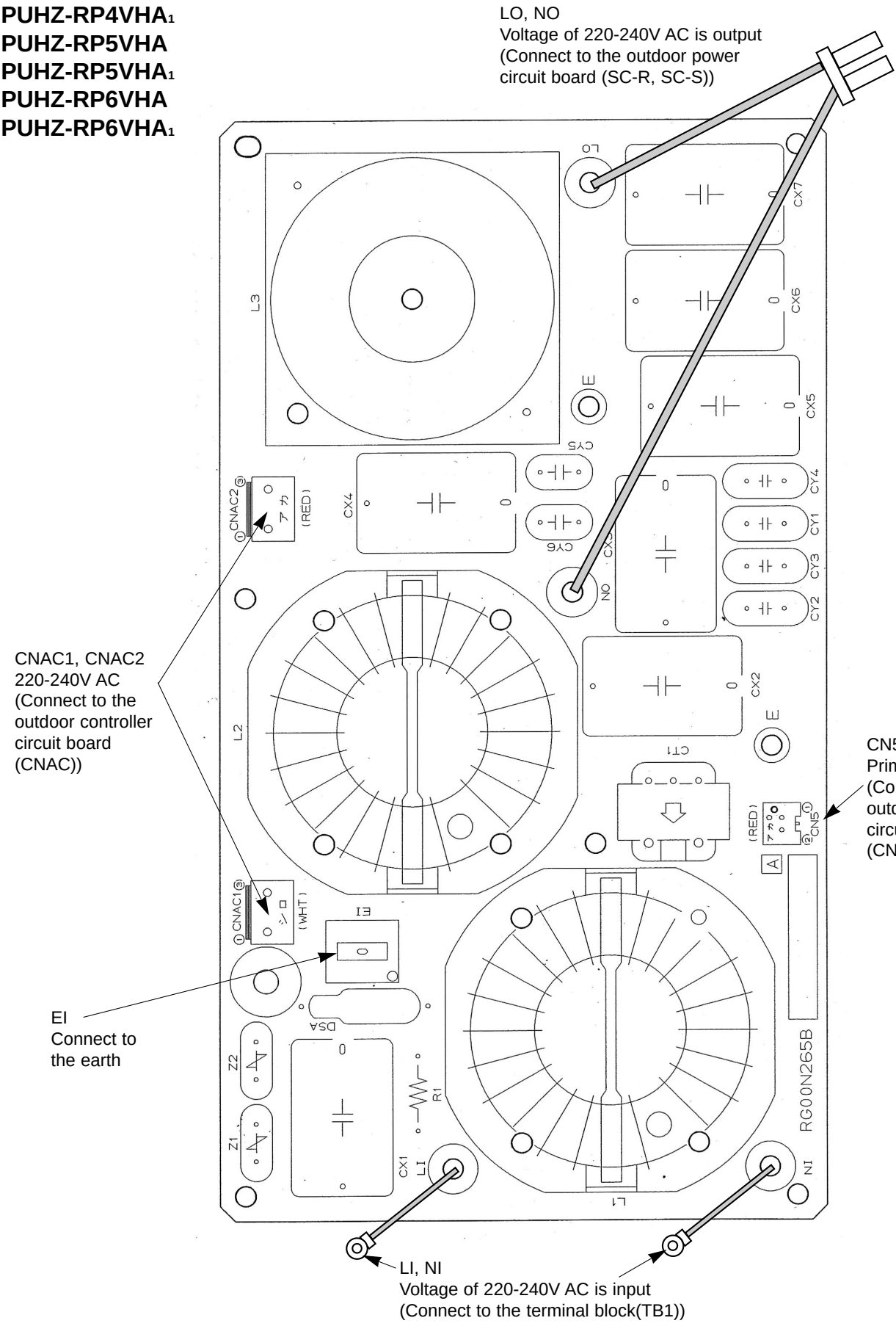


Outdoor noise filter circuit board
PUHZ-RP2.5VHA
PUHZ-RP2.5VHA$_1$
PUHZ-RP3VHA
PUHZ-RP3VHA$_1$

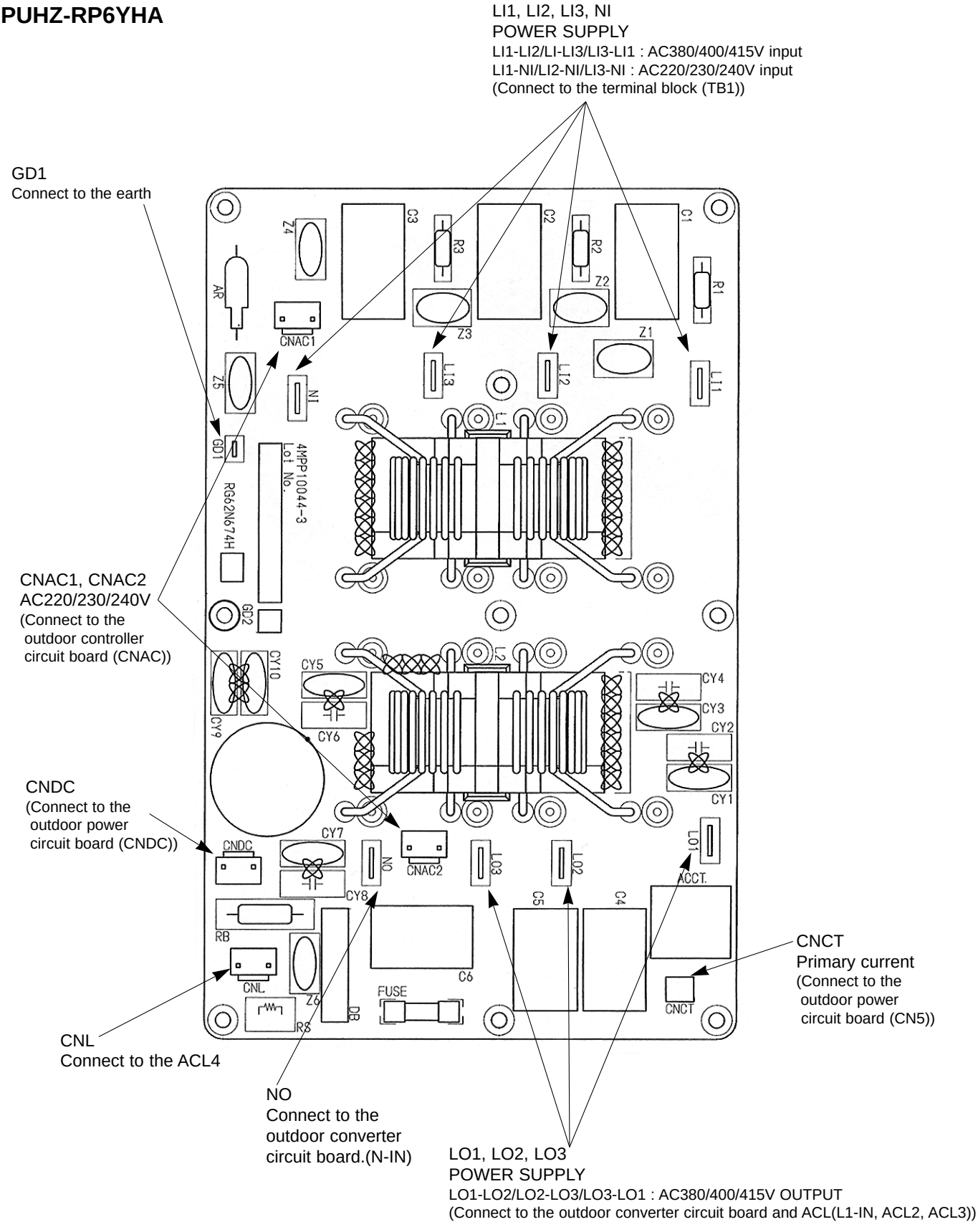


Outdoor noise filter circuit board

PUHZ-RP4VHA
PUHZ-RP4VHA$_1$
PUHZ-RP5VHA
PUHZ-RP5VHA$_1$
PUHZ-RP6VHA
PUHZ-RP6VHA$_1$



Outdoor noise filter circuit board
PUHZ-RP4YHA
PUHZ-RP5YHA
PUHZ-RP6YHA



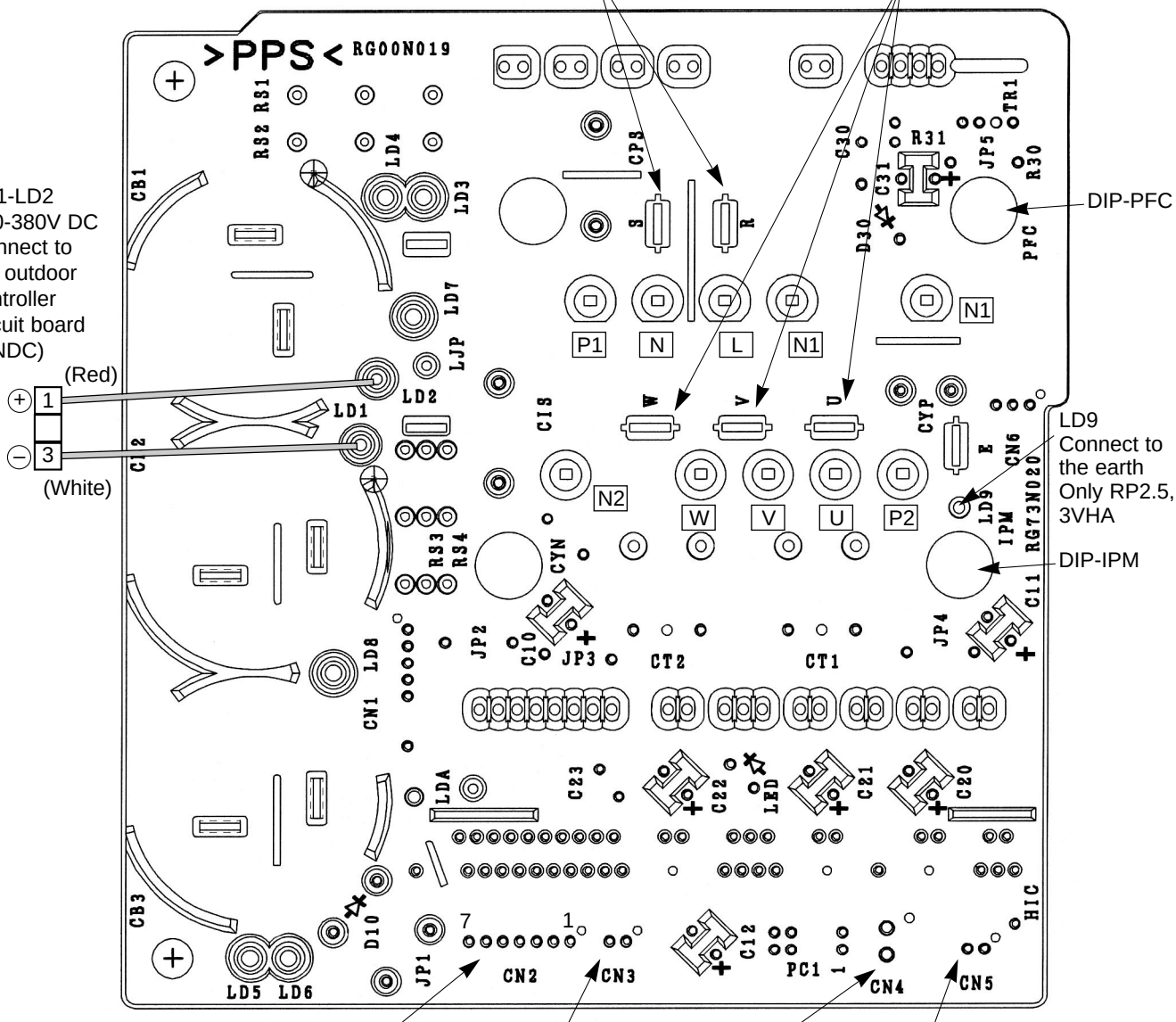
Outdoor power circuit board
PUHZ-RP1.6VHA
PUHZ-RP2VHA
PUHZ-RP2.5VHA
PUHZ-RP2.5VHA$_1$
PUHZ-RP3VHA
PUHZ-RP3VHA$_1$

Brief Check of DIP-IPM and DIP-PFC
※ Usually, they are in a state of being short-circuited if they are broken. Measure the resistance in the following points (connectors, etc.). If they are short-circuited, it means that they are broken.
1. Check of DIP-IPM
P2 - U, P2 - V, P2 - W, N2 - U, N2 - V, N2 - W
2. Check of DIP-PFC
P1 - L, P1 - N, L - N1, N - N1

Note:The marks, L , N , N1 , N2 , P1 , P2 , U , V and W shown in the diagram above are not actually printed on the board.

R, S
Connect to the ACL
220-240V AC

U, V, W
Connect to the compressor (MC)
Voltage among phases: 5V to 180V AC



CN2
Connect to the outdoor controller circuit board (CN2)
①-⑤:Outdoor power circuit board → Transmitting signal to the outdoor controller circuit board (0-5V DC)
②-⑤: Zero cross signal (0-5V DC)
③-④: Not used
⑥-⑤: 15V DC
⑦-⑤: 15V DC
[①, ②, ⑥, ⑦ : ⊕ ⑤ : ⊖]

CN3
Thermistor
<Heat sink>
(TH8)

CN4
Connect from the
outdoor controller
circuit board
(CN4)

CN5
Primary current detection
(Connect to the outdoor
noise filter circuit board
(CN5))

Outdoor power circuit board

PUHZ-RP4VHA
PUHZ-RP4VHA$_1$
PUHZ-RP5VHA
PUHZ-RP5VHA$_1$
PUHZ-RP6VHA
PUHZ-RP6VHA$_1$

Brief Check of POWER MODULE
※ Usually, they are in a state of being short-circuited if they are broken.
Measure the resistance in the following points (connectors, etc.).
If they are short-circuited, it means that they are broken.
1. Check of POWER MODULE
①.Check of DIODE circuit
[L]-[P1], [N]-[P1], [L]-[N1], [N]-[N1]
②.Check of IGBT circuit
[P2]-[U], [P2]-[V], [P2]-[W], [N2]-[U], [N2]-[V], [N2]-[W]
Note:The marks, [L], [N], [N1], [N2], [P1], [P2], [U], [V] and [W] shown in the diagram above are not actually printed on the board.

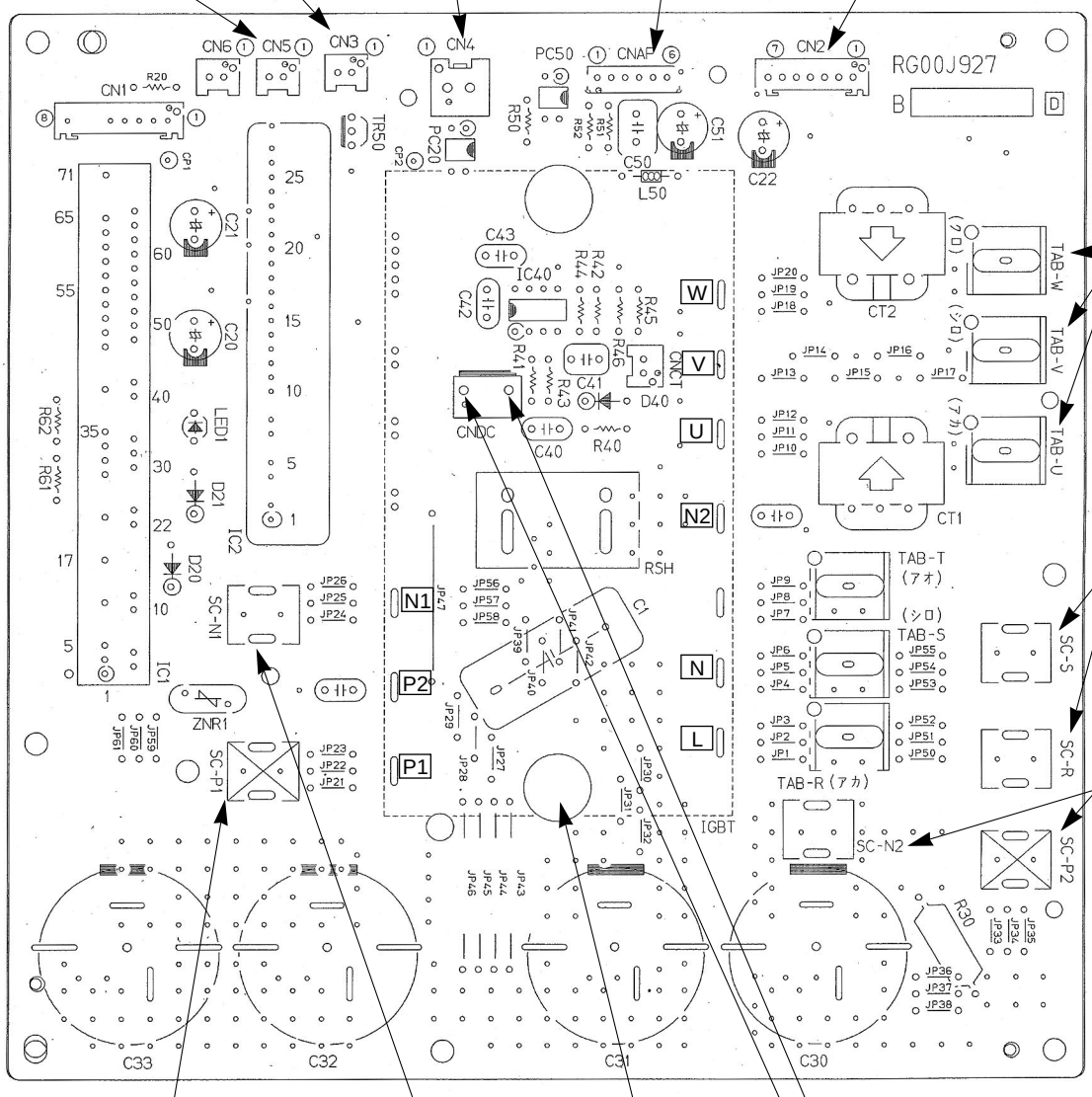
CN5
Detection of primary current (Connect to the outdoor noise filter circuit board (CN5))

CN3
Temperature <Heat sink> (TH8)

CN4
Connect to the outdoor controller circuit board (CN4)

CNAF
Connect to ACTM

CN2
Connect to the outdoor controller circuit board (CN2)
①-⑤: Power circuit board → Transmitting signal to the controller board (0-5V DC)
②-⑤: Zero cross signal (0-5V DC)
③-④: 18V DC [⑤:⊖ ①, ②, ⑥, ⑦:⊕]
⑥-⑤: 15V DC
⑦-⑤: 15V DC [④:⊖ ③:⊕]



TAB-U, TAB-V, TAB-W
Connect to the compressor (MC)
Voltage among phases:
5V-180V AC

SC-R, SC-S
Connect to the outdoor noise filter circuit board (LO, NO)
220V-240V AC

SC-P2, SC-N2
Connect to ACTM and the soothing capacitor

SC-P1
Connect to 52C

SC-N1
Connect to ACTM

POWER MODULE

⊖ ⊕ CNDC
300V-370V DC
Connect to the outdoor controller circuit board (CNDC)

Outdoor power circuit board
PUHZ-RP4YHA
PUHZ-RP5YHA
PUHZ-RP6YHA

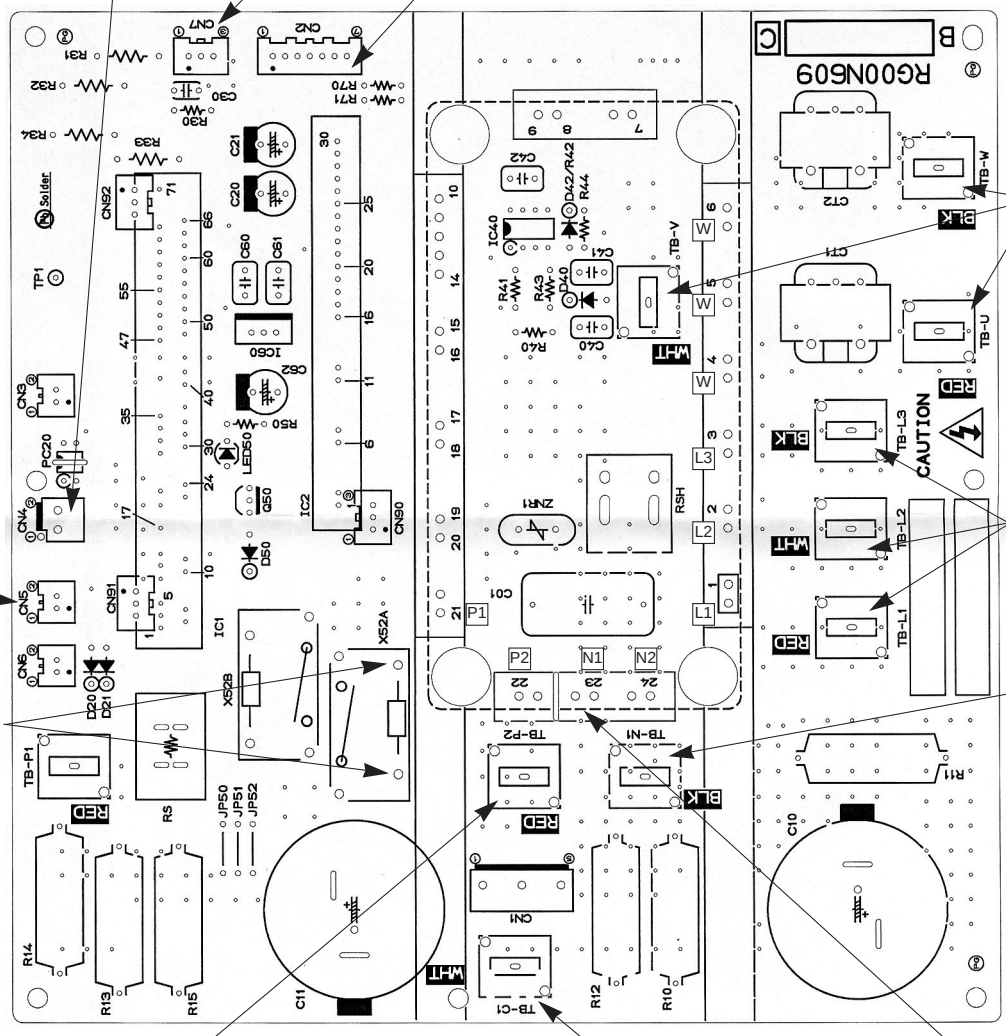
Brief Check of POWER MODULE
※ Usually, they are in a state of being short-circuited if they are broken.
Measure the resistance in the following points (connectors, etc.).
If they are short-circuited, it means that they are broken.
1. Check of POWER MODULE
①.Check of DIODE circuit
L1 - P1, L2 - P1, L3 - P1, L1 - N1, L2 - N1, L3 - N1
②.Check of IGBT circuit
P2 - U, P2 - V, P2 - W, N2 - U, N2 - V, N2 - W
Note:The marks, L1, L2, L3, N1, N2, P1, P2, U, V and W shown in the diagram above are not actually printed on the board.

CN5
Detection of primary current (Connect to the outdoor noise filter circuit board (CNCT))

CN4
Connect to the outdoor controller circuit board (CN4)

CN7
Connect to the outdoor converter circuit board (CN7)

CN2
Connect to the outdoor controller circuit board (CN2)
①-⑤: Power circuit board → Transmitting signal to the controller board (0-5V DC)
②-⑤: Zero cross signal (0-5V DC)
③-④: Not used
⑥-⑤: 16V DC
⑦-⑤: 16V DC
[⑤ : ⊖ ①, ②, ⑥, ⑦ : ⊕]



TB-U, TB-V, TB-W
Connect to the compressor (MC)
Voltage among phases:
10V-400V AC

TB-L1, TB-L2, TB-L3
Connect to the outdoor converter circuit board (L1-OU, L2-OU, L3-OU)
380V-415V AC

TB-N1
Connect to the smoothing capacitor CB2⊖ and the CK capacitor

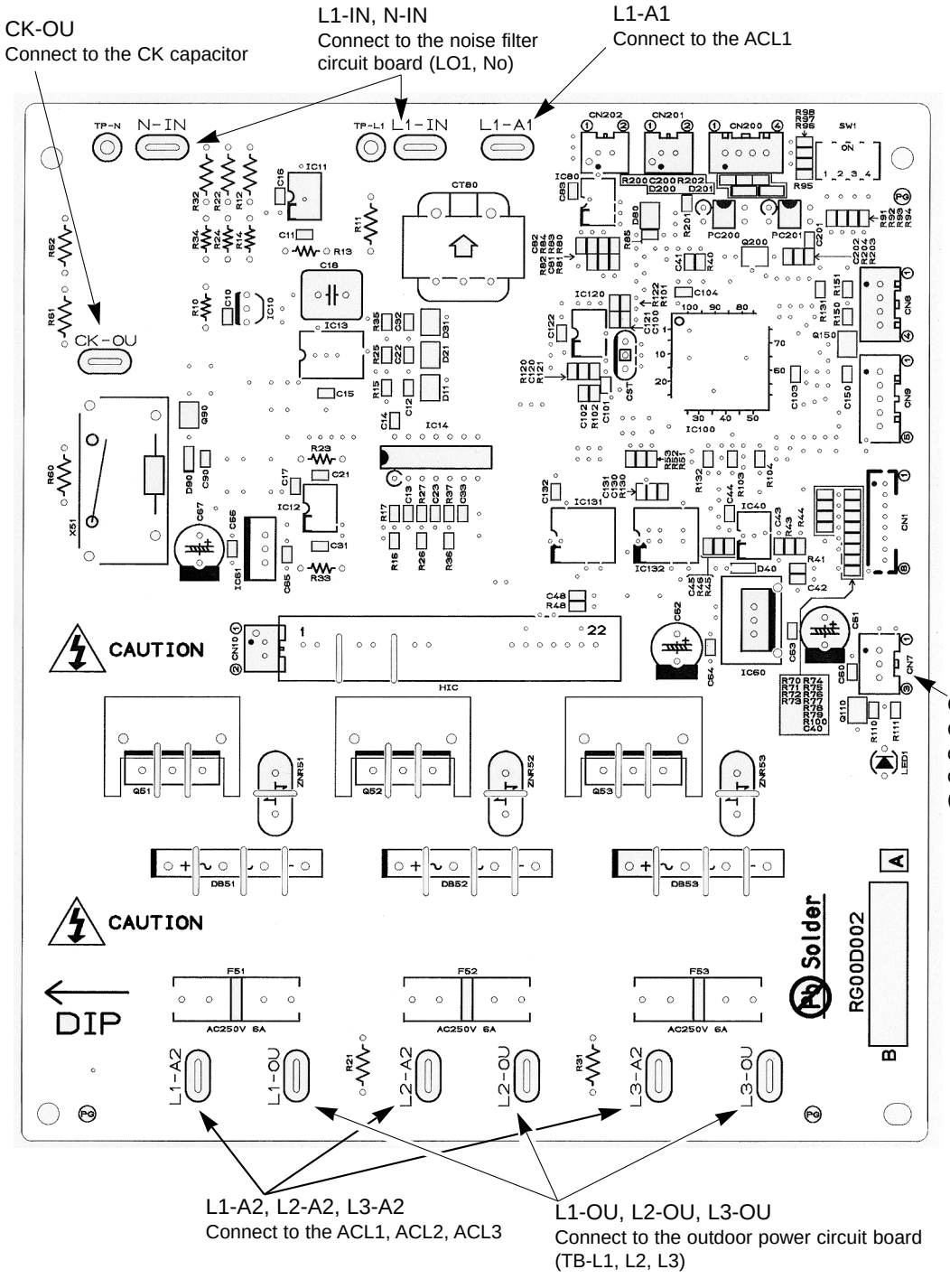
TAB connecter on X52A
Connect to the RS resistor

TB-P2
Connect to the smoothing capacitor CB1⊕

TB-C1
Connect to the smoothing capacitor CB1⊖, CB2⊕

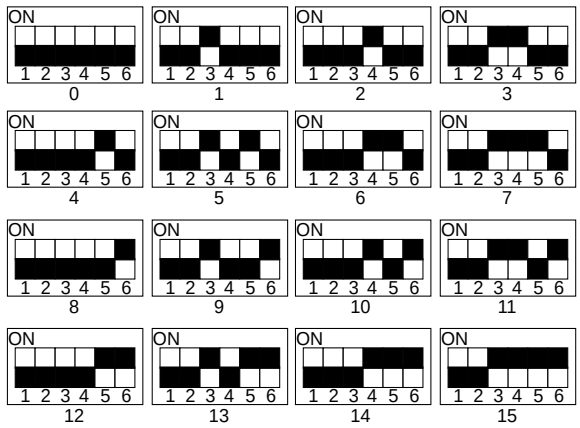
POWER MODULE

Outdoor converter circuit board
PUHZ-RP4YHA
PUHZ-RP5YHA
PUHZ-RP6YHA



11-10. FUNCTION OF SWITCHES, CONNECTORS AND JUMPERS

(1) Function of switches

Type of switch	Switch	No.	Function	Action by the switch operation		Effective timing
				ON	OFF	
Dip switch	SW1	1	Compulsory defrosting	Start	Normal	When compressor is working in heating operation. ※
		2	Abnormal history clear	Clear	Normal	off or operating
		3	Refrigerant address setting			When power supply ON
		4				
		5				
		6				
	SW4	1	Test run	Operating	OFF	Under suspension
		2	Test run mode setting	Heating	Cooling	

Compulsory defrosting should be done as follows.

①Change the DIP SW1-1 on the outdoor controller board from OFF to ON.

②Compulsory defrosting will start by the above operation ① if these conditions written below are satisfied.

- Heat mode setting
- 10 minutes have passed since compressor started operating or previous compulsory defrosting finished.
- Pipe temperature is less than or equal to 8℃.

③Compulsory defrosting will finish if certain conditions are satisfied.

※Compulsory defrosting can be done if above conditions are satisfied when DIP SW1-1 is changed from OFF to ON. After DIP SW1-1 is changed from OFF to ON, there is no problem if DIP SW1-1 is left ON or changed to OFF again. This depends on the service conditions.

<table>
<tr><th rowspan="2">Type of Switch</th><th rowspan="2">Switch</th><th rowspan="2">No.</th><th rowspan="2">Function</th><th colspan="2">Action by the switch operation</th><th rowspan="2">Effective timing</th></tr>
<tr><th>ON</th><th>OFF</th></tr>
<tr><td rowspan="16">Dip switch</td><td rowspan="4">SW5</td><td>1</td><td>No function</td><td>—</td><td>—</td><td>—</td></tr>
<tr><td>2</td><td>Power failure automatic recovery ※1</td><td>Auto recovery</td><td>No auto recovery</td><td>When power supply ON</td></tr>
<tr><td>3</td><td>No function</td><td>—</td><td>—</td><td>—</td></tr>
<tr><td>4</td><td>No function</td><td>—</td><td>—</td><td>—</td></tr>
<tr><td rowspan="4">SW7</td><td>1</td><td rowspan="2">RP1.6-6VHA only
Switch to “Low-level Sound Priority Mode” ※2</td><td colspan="2" rowspan="2"><table>
<tr><th>1</th><th>2</th><th>Low-level Sound Priority Mode</th><th>Cooling</th><th>Heating</th></tr>
<tr><td rowspan="2">OFF</td><td>OFF</td><td rowspan="2">Mode 1</td><td rowspan="2">Regulate max Hz to spec.</td><td rowspan="2">Regulate max Hz to spec.</td></tr>
<tr><td>ON</td></tr>
<tr><td rowspan="2">ON</td><td>OFF</td><td>Mode 2</td><td>Regulate max Hz to spec.</td><td>No regulation</td></tr>
<tr><td>ON</td><td>Mode 3</td><td>Only TH7 ≧ 30°C regulate max Hz to spec.</td><td>Regulate max Hz to spec.</td></tr>
</table></td><td rowspan="4">Always</td></tr>
<tr><td>2</td></tr>
<tr><td>1</td><td rowspan="2">RP4-6YHA only
Switch to “Demand function” ※2</td><td colspan="2" rowspan="2"><table>
<tr><th>SW7-1</th><th>SW7-2</th><th>Power consumption when external input</th></tr>
<tr><td>OFF</td><td>OFF</td><td>0% (STOP)</td></tr>
<tr><td>ON</td><td>OFF</td><td>50%</td></tr>
<tr><td>OFF</td><td>ON</td><td>70%</td></tr>
</table></td></tr>
<tr><td>2</td></tr>
<tr><td rowspan="4">SW7</td><td>3</td><td>No function</td><td>—</td><td>—</td><td>—</td></tr>
<tr><td>4</td><td>No function</td><td>—</td><td>—</td><td>—</td></tr>
<tr><td>5</td><td>No function</td><td>—</td><td>—</td><td>—</td></tr>
<tr><td>6</td><td>No function</td><td>—</td><td>—</td><td>—</td></tr>
<tr><td rowspan="3">SW8</td><td>1</td><td>Use of existing pipe</td><td>Used</td><td>Not used</td><td>Always</td></tr>
<tr><td>2</td><td>Replacement operation</td><td>Start</td><td>Normal</td><td>Under suspension</td></tr>
<tr><td>3</td><td>No function</td><td>—</td><td>—</td><td>—</td></tr>
<tr><td>Push switch</td><td colspan="2">SWP</td><td>Pump down</td><td>Start</td><td>Normal</td><td>Under suspension</td></tr>
</table>

※1 Power failure automatic recovery' can be set by either remote controller or this DIP SW. If one of them is set to ON, 'Auto recovery' activates. Please set “Auto recovery” basically by remote controller because all units have not DIP SW. Please refer to mode 01 in the table on page 72.

※2 SW7-1,2 to “Low-level Sound Priority Mode” available in “Low-level Sound Priority Mode” mode only.

(2) Function of connectors and jumpers

<table>
<tr><th rowspan="2">Types</th><th rowspan="2">Connector</th><th rowspan="2">Function</th><th colspan="2">Action by open/ short operation</th><th rowspan="2">Effective timing</th></tr>
<tr><th>Short</th><th>Open</th></tr>
<tr><td>Connector</td><td>CN31</td><td>Emergency operation</td><td>Start</td><td>Normal</td><td>When power supply ON</td></tr>
<tr><td rowspan="6">SW6
or
Jumper
(RP1.6-6VHA)</td><td>SW6-1
(J1)</td><td rowspan="6">Capacity settings</td><td colspan="3" rowspan="6">○:ON(Short) ×:OFF(Open)
<table>
<tr><th>Model \ SW6(JP)</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th></tr>
<tr><td>PUHZ-RP1.6VHA</td><td>×</td><td>×</td><td>×</td><td>○</td><td>×</td><td>×</td></tr>
<tr><td>PUHZ-RP2VHA</td><td>×</td><td>×</td><td>○</td><td>○</td><td>×</td><td>×</td></tr>
<tr><td>PUHZ-RP2.5VHA</td><td>×</td><td>×</td><td>×</td><td>×</td><td>○</td><td>×</td></tr>
<tr><td>PUHZ-RP3VHA</td><td>×</td><td>×</td><td>○</td><td>×</td><td>○</td><td>×</td></tr>
<tr><td>PUHZ-RP4VHA</td><td>×</td><td>×</td><td>×</td><td>○</td><td>○</td><td>×</td></tr>
<tr><td>PUHZ-RP5VHA</td><td>×</td><td>×</td><td>○</td><td>○</td><td>○</td><td>×</td></tr>
<tr><td>PUHZ-RP6VHA</td><td>×</td><td>×</td><td>×</td><td>×</td><td>×</td><td>○</td></tr>
</table></td></tr>
<tr><td>SW6
SW10</td></tr>
<tr><td>SW6-2
(J2)</td></tr>
<tr><td>SW6-3
(J3)</td></tr>
<tr><td>SW6-4
(J4)</td></tr>
<tr><td>SW6-5
(J5)</td></tr>
<tr><td>SW6-6
(J6)</td></tr>
<tr><td>SW
(RP4-6YHA)</td><td>SW6
SW10</td><td>Capacity settings</td><td colspan="3">
<table>
<tr><th>MODELS</th><th>SW6</th><th>SW10</th></tr>
<tr><td>RP4Y</td><td>ON
OFF
1 2 3 4 5 6</td><td>ON
OFF
1 2</td></tr>
<tr><td>RP5Y</td><td>ON
OFF
1 2 3 4 5 6</td><td>ON
OFF
1 2</td></tr>
<tr><td>RP6Y</td><td>ON
OFF
1 2 3 4 5 6</td><td>ON
OFF
1 2</td></tr>
</table></td></tr>
</table>

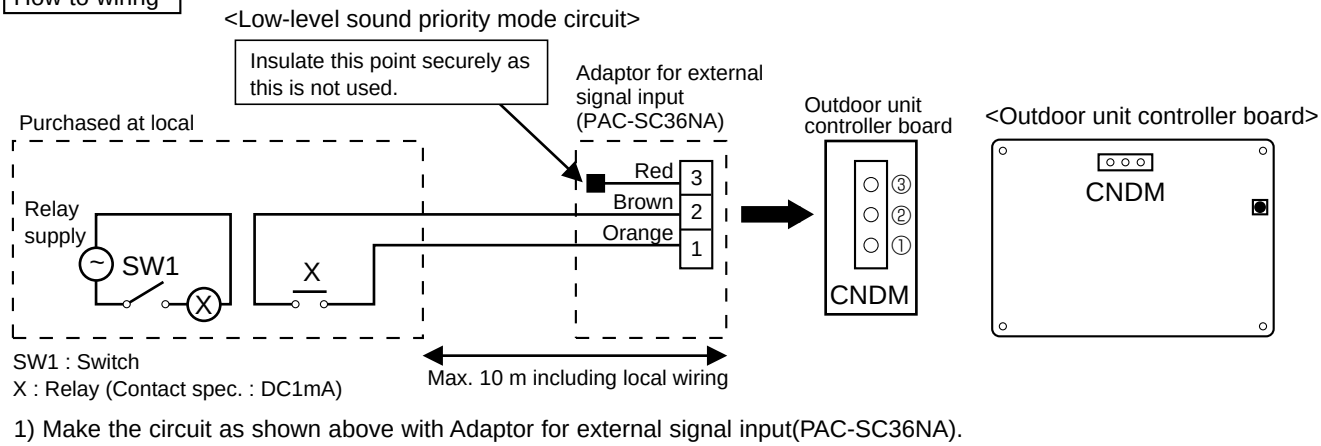
Special function

(a) Low-level sound priority mode (Local wiring)

Unit enters into Low-level sound priority mode by SW7-1, 2 and external signal input setting.
Inputting external signals to the outdoor unit decreases the outdoor unit operation sound 3 to 4 dB lower than that of usual.
Adding a commercial timer or on-off switch contactor setting to the CNDM connector which is optional contactor for Demand input located on the outdoor controller board enables to control compressor operation frequency. In Low-level sound priority mode, the maximum outdoor fan steps is regulated to 8 and the maximum operation frequency of the compressor is regulated to specified range in cool mode. In heating mode, the maximum compressor operation frequency is regulated to specified range.

※ The performance is depends on the load of conditioned air of the room.

How to wiring



1) Make the circuit as shown above with Adaptor for external signal input(PAC-SC36NA).
2) Turn SW1 to on for Low-level sound priority mode.
Turn SW1 to off to release Low-level sound priority mode and normal operation.

(b) On demand control (Local wiring)

Demand control is available by external input. In this mode, the outdoor unit stops and indoor unit operates with fan mode.

※ The setting of SW-7 is not required for the demand control.

How to wiring

Basically, the wiring is the same.

Connect an SW 1 which is procured at field to the between Orange and Red(1 and 3) of the Adaptor for external signal input(PAC-SC36NA), and insulate the tip of the brown lead wire.

<Display function of inspection for outdoor unit>

The blinking patterns of both LED1(green) and LED2(red) indicate the types of abnormality when it occurs. Types of abnormality can be indicated in details by connecting an optional part 'A-Control Service Tool (PAC-SK52ST)' to connector CNM on outdoor controller board.

[Display]

(1)Normal condition

Unit condition	Outdoor controller board		A-Control Service Tool	
	LED1 (Green)	LED2 (Red)	Error code	Indication of the display
When the power is turned on	Lighted	Lighted	—⇔—	Alternately blinking display
When unit stops	Lighted	Not lighted	00, etc.	Operation mode
When compressor is warming up	Lighted	Not lighted	08, etc.	
When unit operates	Lighted	Lighted	C5, H7 etc.	

(2)Abnormal condition

Indication		Error			
Outdoor controller board		Contents	Error code ※1	Inspection method	Detailed reference page
LED1 (Green)	LED2 (Red)				
1 blinking	2 blinking	Connector(63L) is open.	F3	①Check if connector (63L or 63H) on the outdoor controller board is not disconnected. ②Check continuity of pressure switch (63L or 63H) by tester.	P.35
		Connector(63H) is open.	F5		P.35
		2 connectors are open.	F9		P.35
2 blinking	1 blinking	Mis-wiring of indoor/outdoor unit connecting wire, excessive number of indoor units (4 units or more)	—	①Check if indoor/outdoor connecting wire is connected correctly. ②Check if 4 or more indoor units are connected to outdoor unit. ③Check if noise entered into indoor/outdoor connecting wire or power supply. ④Re-check error by turning off power, and on again.	P.36
		Mis-wiring of indoor/outdoor unit connecting wire (converse wiring or disconnection)	—		P.36
		Startup time over	—		P.36
	2 blinking	Indoor/outdoor unit communication error (signal receiving error) is detected by indoor unit.	E6	①Check if indoor/outdoor connecting wire is connected correctly. ②Check if noise entered into indoor/outdoor connecting wire or power supply. ③Check if noise entered into indoor/outdoor controller board. ④Re-check error by turning off power, and on again.	※2
		Indoor/outdoor unit communication error (transmitting error) is detected by indoor unit.	E7		※2
		Indoor/outdoor unit communication error (signal receiving error) is detected by outdoor unit.	—		P.41
		Indoor/outdoor unit communication error (transmitting error) is detected by outdoor unit.	—		P.41
	3 blinking	Remote controller signal receiving error is detected by remote controller.	E0	①Check if connecting wire of indoor unit or remote controller is connected correctly. ②Check if noise entered into transmission wire of remote controller. ③Re-check error by turning off power, and on again.	P.41
		Remote controller transmitting error is detected by remote controller.	E3		P.41
		Remote controller signal receiving error is detected by indoor unit.	E4		※2
		Remote controller transmitting error is detected by indoor unit.	E5		※2
	4 blinking	Error code is not defined.	EF	①Check if remote controller is MA remote controller(PAR-20MAA). ②Check if noise entered into transmission wire of remote controller. ③Check if noise entered into indoor/outdoor connecting wire. ④Re-check error by turning off power, and on again.	P.41
	5 blinking	Serial communication error <Communication between outdoor controller board and outdoor power board> <Communication between outdoor controller board and M-NET p.c. board>	Ed	①Check if connector (CN4) on outdoor controller board and outdoor power board is not disconnected. ②Check if there is poor connection of connector on outdoor controller board(CNMNT and CNVMNT). ③Check M-NET communication signal.	P.41
		Communication error of high prior signal(M-NET)	A0~A8		P.42~P.45

※1.Error code displayed on remote controller.

※2.Refer to service manual for indoor unit.

Indication		Error			
Outdoor controller board		Contents	Error code ※1	Inspection method	Detailed reference page
LED1 (Green)	LED2 (Red)				
3 blinking	1 blinking	Abnormality of shell thermostat and discharging temperature (TH4)	U2	①Check if stop valves are open. ②Check if connectors (TH4, LEV-A, and LEV-B) on outdoor controller board are not disconnected. ③Check if unit fills with specified amount of refrigerant. ④Measure resistance values among terminals on indoor valve and outdoor linear expansion valve using a tester.	P.37
		Abnormality of super heat due to low discharge temperature	U7		P.39
	2 blinking	Abnormal high pressure (High pressure switch 63H worked.)	U1	①Check if indoor/outdoor units have a short cycle on their air ducts. ②Check if connector (63H) on outdoor controller board is not disconnected. ③Check if heat exchanger and filter is not dirty. ④Measure resistance values among terminals on linear expansion valve using a tester.	P.37
	3 blinking	Abnormality of outdoor fan motor rotational speed	U8	①Check the outdoor fan motor.	P.39
	4 blinking	Compressor over current breaking (Start-up locked)	UF	①Check if stop valves are open. ②Check looseness, disconnection, and converse connection of compressor wiring. ③Measure resistance values among terminals on compressor using a tester. ④Check if outdoor unit has a short cycle on its air duct.	P.40
		Compressor over current breaking	UP		P.40
		Abnormality of current sensor (P.B.)	UH		P.40
		Abnormality of power module	U6		P.39
	5 blinking	Open/short of discharge thermistor (TH4)	U3	①Check if connectors (TH3, TH4, TH6 and TH7) on outdoor controller board and connector (CN3) on outdoor power board are not disconnected. ②Measure resistance value of outdoor thermistors.	P.38
		Open/short of outdoor thermistors (TH3, TH6, TH7 and TH8)	U4		P.38
		Open/short of outdoor thermistor (TH8)			
	6 blinking	Abnormality of radiator panel temperature	U5	①Check if indoor/outdoor units have a short cycle on their air ducts. ②Measure resistance value of outdoor thermistor(TH8).	P.38
	7 blinking	Abnormality of voltage	U9	①Check looseness, disconnection, and converse connection of compressor wiring. ②Measure resistance value among terminals on compressor using a tester. ③Check the continuity of contactor (52C). ④Check if power supply voltage decreases. ⑤Check the wiring of CN52C. ⑥Check the wiring of CNAF. (RP4~6VHA only)	P.39
4 blinking	1 blinking	Abnormality of room temperature thermistor (TH1)	P1	①Check if connectors (CN20, CN21 and CN29) on indoor controller board are not disconnected. ②Measure resistance value of indoor thermistors.	※2
		Abnormality of pipe temperature thermistor /Liquid (TH2)	P2		※2
		Abnormality of pipe temperature thermistor/Condenser-Evaporator	P9		※2
	2 blinking	Abnormality of drain sensor (DS)	P4	①Check if connector (CN31) on indoor controller board is not disconnected. ②Measure resistance value of indoor thermistors. ③Measure resistance value among terminals on drain-up machine using a tester. ④Check if drain-up machine works. ⑤Check drain function.	※2
		Indoor drain overflow protection	P5		
	3 blinking	Freezing (cooling)/overheating (heating) protection	P6	①Check if indoor unit has a short cycle on its air duct. ②Check if heat exchanger and filter is not dirty. ③Measure resistance value on indoor and outdoor fan motors. ④Check if the inside of refrigerant piping is not clogged.	※2
	4 blinking	Abnormality of pipe temperature	P8	①Check if indoor thermistors (TH2 and TH5) are not disconnected from holder. ②Check if stop valve is open. ③Check converse connection of extension pipe. (on plural units connection) ④Check if indoor/outdoor connecting wire is connected correctly. (on plural units connection)	※2

※1 Error code displayed on remote controller
※2 Refer to service manual for indoor unit.
※3 LED1 on power board for RP4-6VHA.
1 blink: Power is supplied.
2 blinks: Power is supplied to compressor.
3 blinks: Power is supplied to warm up compressor.
Blinking: Limited control is being performed.

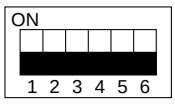
LED indications of fan operating condition (LED5 and LED6 on controller board) RP1.6-RP6VHA only.

Operation	LED5/LED6 (Red)	Contents
Normal (Stop)	Lit	Fan stops.
Normal (Operating)		Controller board is outputting waveform for fan driving.

Operation	LED5/LED6 (Red)	Importance	Meaning of error code and detection method	Remark
Abnormal is detected	2 blinks	1	**Abnormality of bus voltage**: Abnormal if bus voltage inspected for 1.5msec. is less than 60V or more than 390V.	These LEDs are not used for service.
	6 blinks	2	**Abnormality of overcurrent**: Abnormal if current value of DC bus in fan controller board is over the cut-off point.	
	7 blinks	3	**Abnormality of startup failure**: Abnormal if the operating speed does not reach 100rpm even 12 sec passed after startup.	
	8 blinks	4	**Abnormality of position detection**: Abnormal if the position of U-phase cannot be detected after starting up fan.	
		5	**Abnormality of disconnection**: Abnormal if the first pattern of U/V/W-phase position detected after startup is H/H/H or L/L/L.	

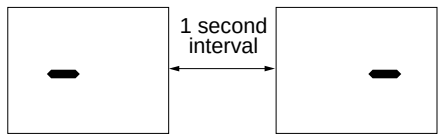
<Outdoor unit operation monitor function>
[When option part 'A-Control Service Tool(PAC-SK52ST)' is connected to outdoor controller board(CNM)]
Digital indicator LED1 displays 2 digit number or code to inform operation condition and the meaning of error code by controlling DIP SW2 on 'A-Control Service Tool'.

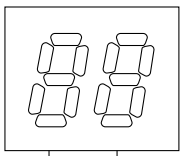
Operation indicator SW2 : Indicator change of self diagnosis

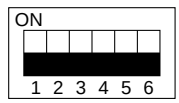
SW2 setting	Display detail	Explanation for display	Unit
			

<Digital indicator LED1 working details>
(Be sure the 1 to 6 in the SW2 are set to OFF.)

(1) Display when the power supply ON.
When the power supply ON, blinking displays by turns.
Wait for 4 minutes at the longest.
(2) When the display lights. (Normal operation)
①Operation mode display.



LED1  (Lighting)

SW2


(Initial setting)

The tens digit : Operation mode

Display	Operation Model
O	OFF / FAN
C	COOLING / DRY ※
H	HEATING
d	DEFROSTING

※C5 is displayed during replacement operation. <for RP4-RP6>

②Display during error postponement
Postponement code is displayed when compressor stops due to the work of protection device.
Postponement code is displayed while error is being postponed.

The ones digit : Relay output

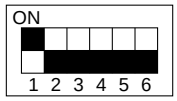
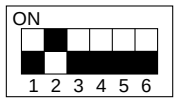
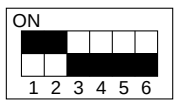
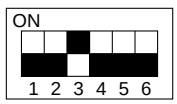
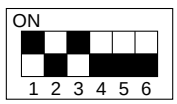
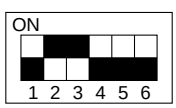
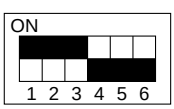
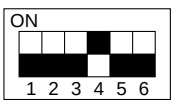
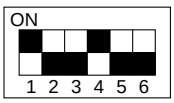
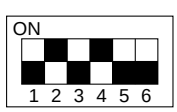
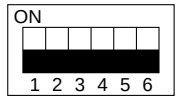
Display	Warming-up Compressor	Compressor	4-way valve	Solenoid valve
0	—	—	—	—
1	—	—	—	ON
2	—	—	ON	—
3	—	—	ON	ON
4	—	ON	—	—
5	—	ON	—	ON
6	—	ON	ON	—
7	—	ON	ON	ON
8	ON	—	—	—
A	ON	—	ON	—

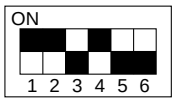
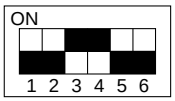
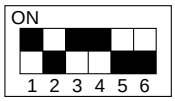
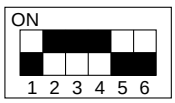
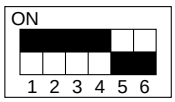
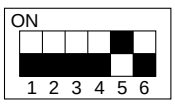
(3) When the display blinks
Inspection code is displayed when compressor stops due to the work of protection devices.

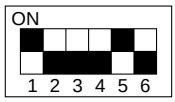
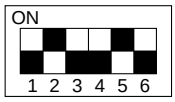
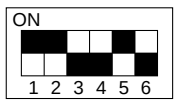
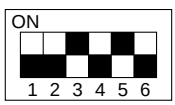
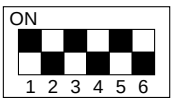
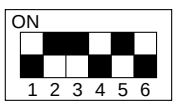
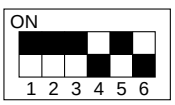
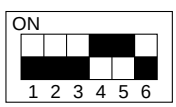
Display	Contents to be inspected (During operation)
U1	Abnormal high pressure (63H worked)
U2	Abnormal high discharging temperature, shortage of refrigerant
U3	Open/short circuit of discharging thermistor(TH4)
U4	Open/short of outdoor unit thermistors(TH3, TH6, TH7 and TH8)
U5	Abnormal temperature of heat sink
U6	Abnormality of power module
U7	Abnormality of super heat due to low discharge temperature
U8	Abnormality in outdoor fan motor. (RP4-RP6YHA)
UF	Compressor overcurrent interruption (When Comp. locked)
UH	Current sensor error
UL	Abnormal low pressure (63L worked)
UP	Compressor overcurrent interruption
P1~P8	Abnormality of indoor units
A0~A7	Communication error of high-prior signal (M-NET)

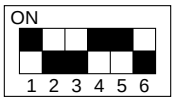
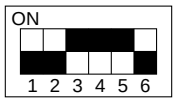
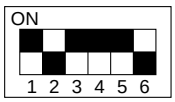
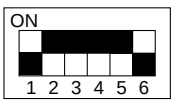
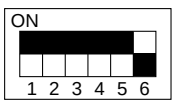
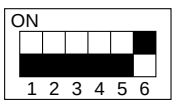
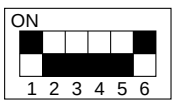
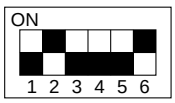
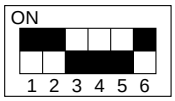
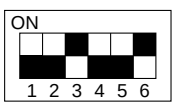
Display	Inspection unit
0	Outdoor unit
1	Indoor unit 1
2	Indoor unit 2
3	Indoor unit 3

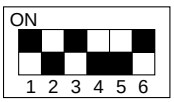
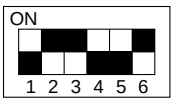
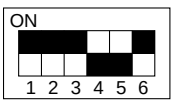
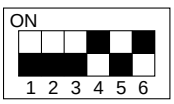
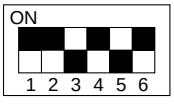
Display	Contents to be inspected (When power is turned on)
F3	63L connector(red) is open.
F5	63H connector(yellow) is open.
F9	2 connectors (63H/63L) are open.
E8	Indoor/outdoor communication error (Signal receiving error) (Outdoor unit)
E9	Indoor/outdoor communication error (Transmitting error) (Outdoor unit)
EA	Mis-wiring of indoor/outdoor unit connecting wire, excessive number of indoor units (4 units or more)
Eb	Mis-wiring of indoor/outdoor unit connecting wire(converse wiring or disconnection)
Ec	Startup time over
E0~E7	Communication error except for outdoor unit

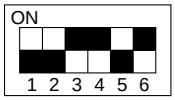
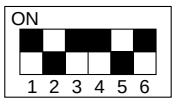
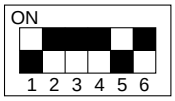
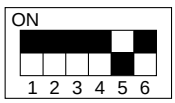
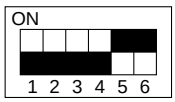
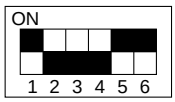
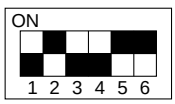
SW2 setting	Display detail	Explanation for display	Unit
	Pipe temperature / Liquid(TH3) – 40~90	– 40~90 (When the coil thermistor detects 0℃ or below, "–" and temperature are displayed by turns.) (Example) When -10℃; 0.5 secs. 0.5secs. 2 secs. -□ →10 →□□	℃
	Discharge temperature (TH4) 3~217	3~217 (When the discharge thermistor detects 100℃ or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 105℃; 0.5 secs. 0.5secs. 2 secs. □1 →05 →□□	℃
	Output step of outdoor FAN 0~10	0~10	Step
	The number of ON / OFF times of compressor 0~9999	0~9999 (When the number of times is 100 or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 42500 times (425 ×100 times); 0.5 secs. 0.5secs. 2 secs. □4 →25 →□□	100 times
	Compressor integrating operation times 0~9999	0~9999 (When it is 100 hours or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 2450 hours (245 ×10 hours); 0.5 secs. 0.5secs. 2 secs. □2 →45 →□□	10 hours
	Compressor operating current. 0~50	0~50 ※Omit the figures after the decimal fractions.	A
	Compressor operating frequency 0~225	0~255 (When it is 100Hz or more, hundreds digit, tens digit and ones digit are displayed by turns. (Example) When 125Hz; 0.5 secs. 0.5secs. 2 secs. □1 →25 →□□	Hz
	LEV-A opening pulse 0~480	0~480 (When it is 100 pulse or more, hundreds digit, tens digit and ones digit are displayed by turns. (Example) When 150 pulse; 0.5 secs. 0.5secs. 2 secs. □1 →50 →□□	Pulse
	Error postponement code history (1) of outdoor unit	Postponement code display Blinking: During postponement Lighting: Cancellation of postponement "00" is displayed in case of no postponement.	Code display
	Operation mode on error occurring	Operation mode of when operation stops due to error is displayed by setting SW2 like below. (SW2) 	Code display

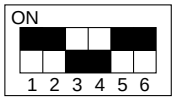
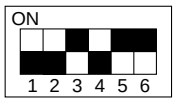
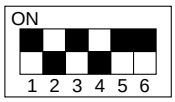
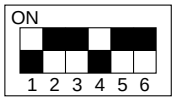
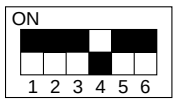
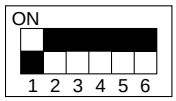
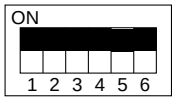
SW2 setting	Display detail	Explanation for display	Unit
	Pipe temperature / Liquid(TH3) on error occurring – 40~90	– 40~90 (When the coil thermistor detects 0℃ or below, "–" and temperature are displayed by turns.) (Example) When –15℃; 0.5 secs. 0.5secs. 2 secs. –□ →15 →□□	℃
	Compressor temperature (TH4) or discharge temperature (TH4) on error occurring 3~217	3~217 (When the temperature is 100℃ or more, the hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 130℃; 0.5 secs. 0.5secs. 2 secs. □1 →30 →□□	℃
	Compressor operating current on error occurring 0~20	0~20	A
	Error code history (1) (latest) Alternate display of abnormal unit number and code	When no error history, " 0 " and "– –" are displayed by turns.	Code display
	Error code history (2) Alternate display of error unit number and code	When no error history, " 0 " and "– –" are displayed by turns.	Code display
	Thermostat ON time 0~999	0~999 (When it is 100 minutes or more, the hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 245 minutes; 0.5 secs. 0.5secs. 2 secs. □2 →45 →□□	Minute
	Test run elapsed time 0~120	0~120 (When it is 100 minutes or more, the hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 105 minutes; 0.5 secs. 0.5secs. 2 secs. □1 →05 →□□	Minute

<table>
<tr><th>SW2 setting</th><th>Display detail</th><th>Explanation for display</th><th>Unit</th></tr>
<tr><td>  </td><td>The number of connected indoor units</td><td>0~3
(The number of connected indoor units are displayed.)</td><td>Unit</td></tr>
<tr><td>  </td><td>Capacity setting display</td><td>Displayed as an outdoor capacity code.<table><tr><th>Capacity</th><th>Code</th><th>Capacity</th><th>Code</th></tr><tr><td>RP1.6V</td><td>9</td><td>RP4V, 4Y</td><td>20</td></tr><tr><td>RP2V</td><td>10</td><td>RP5V, 5Y</td><td>25</td></tr><tr><td>RP2.5V</td><td>11</td><td>RP6V, 6Y</td><td>28</td></tr><tr><td>RP3V</td><td>14</td><td></td><td></td></tr></table></td><td>Code display</td></tr>
<tr><td>  </td><td>Outdoor unit setting information</td><td>• The tens digit (Total display for applied setting)<table><tr><th>Setting details</th><th>Display details</th></tr><tr><td>H·P / Cooling only</td><td>0 : H·P 1 : Cooling only</td></tr><tr><td>Single phase / Three phase</td><td>0 : Single phase 2 : Three phase</td></tr></table>• The ones digit<table><tr><th>Setting details</th><th>Display details</th></tr><tr><td>Defrosting switch</td><td>0 : Normal 1 : For high humidity</td></tr></table>(Example) When heat pump,three phase and defrosting (normal) are set up, “20” is displayed.</td><td>Code display</td></tr>
<tr><td>  </td><td>Indoor pipe temperature / Liquid
(TH2(1))
Indoor 1
– 39~88</td><td>– 39~88
(When the temperature is 0℃ or less, “–” and temperature are displayed by turns.)</td><td>℃</td></tr>
<tr><td>  </td><td>Indoor pipe temperature / Cond. / Eva.
(TH5(1))
Indoor 1
– 39~88</td><td>– 39~88
(When the temperature is 0℃ or less, “–” and temperature are displayed by turns.)</td><td>℃</td></tr>
<tr><td>  </td><td>Indoor pipe temperature / Liquid
(TH2(2))
Indoor 2
– 39~88</td><td>– 39~88
(When the temperature is 0℃ or less, “–” and temperature are displayed by turns.)</td><td>℃</td></tr>
<tr><td>  </td><td>Indoor pipe temperature / Cond. / Eva.
(TH5(2))
Indoor 2
– 39~88</td><td>– 39~88
(When the temperature is 0℃ or less, “–” and temperature are displayed by turns.)</td><td>℃</td></tr>
<tr><td>  </td><td>Indoor room temperature (TH1)
8~39</td><td>8~39</td><td>℃</td></tr>
</table>

SW2 setting	Display detail	Explanation for display	Unit
	Indoor setting temperature 17~30	17~30	℃
	Outdoor pipe temperature / Cond./ Eva. (TH6) -39~88	-39~88 (When the temperature is 0℃ or less, "–" and temperature are displayed by turns.)	℃
	Outdoor outside temperature (TH7) -39~88	-39~88 (When the temperature is 0℃ or less, "–" and temperature are displayed by turns.)	℃
	Outdoor heat sink temperature (TH8) -40~200	-40~200 (When the temperature is 0℃ or less, "–" and temperature are displayed by turns.) (When the thermistor detects 100℃ or more, hundreds digit, tens digit and ones digit are displayed by turns.)	℃
	Discharge super heat. SHd 0~255 [Cooling = TH4-TH6 Heating = TH4-TH5]	0~255 (When the temperature is 100°C or more, hundreds digit, tens digit and ones digit are displayed by turns.)	°C
	Sub cool. SC 0~130 [Cooling = TH6-TH3 Heating = TH5-TH4]	0~130 (When the temperature is 100°C or more, hundreds digit, tens digit and ones digit are displayed by turns.)	°C
	Input current of outdoor unit	0~500 (When it is 100 or more, hundreds digit, tens digit and ones digit are displayed by turns.)	0.1 A
	LEV-B opening pulse	0~480 (When it is 100 pulse or more, hundreds digit, tens digit and ones digit are displayed by turns.)	Pulse
	Targeted operation frequency 0~255	0~255 (When it is 100Hz or more, hundreds digit, tens digit and ones digit are displayed by turns.)	Hz
	DC bus voltage 180~370	180~370 (When it is 100V or more, hundreds digit, tens digit and ones digit are displayed by turns.)	V

SW2 setting	Display detail	Explanation for display	Unit
	Capacity save 0~255 When air conditioner is connected to M-NET and capacity save mode is demanded, “0”~”100” is displayed. [When there is no setting of capacity save “100” is displayed.]	0~100 (When the capacity is 100% hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 100%; 0.5 secs. 0.5secs. 2 secs. □1 →00 →□□	%
	Error postponement code history (2) of outdoor unit	Postponement code display Blinking: During postponement Lighting: Cancellation of postponement “00” is displayed in case of no postponement.	Code display
	Error postponement code history (3) of outdoor unit	Postponement code display Blinking: During postponement Lighting: Cancellation of postponement “00” is displayed in case of no postponement.	Code display
	Error code history (3) (Oldest) Alternate display of abnormal unit number and code.	When no error history, “0” and “– –“ are displayed by turns.	Code display
	Error thermistor display [When there is no error thermistor, “–“ is displayed.]	3: Outdoor pipe temperature /Liquid (TH3) 6: Outdoor pipe temperature /Cond./Eva. (TH6) 7: Outdoor outside temperature (TH7) 8: Outdoor radiator panel (TH8)	Code display
	Operation frequency on error occurring 0~255	0~255 (When it is 100Hz or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 125Hz; 0.5 secs. 0.5secs. 2 secs. □1 →25 →□□	Hz
	Fan step on error occurring 0~10	0~10	Step

SW2 setting	Display detail	Explanation for display	Unit
	LEV-A opening pulse on error occurring 0~480	0~480 (When it is 100 pulse or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 130 pulse; 0.5 secs. 0.5secs. 2 secs. □1 →30 →□□	Pulse
	Indoor room temperature (TH1) on error occurring 8~39	8~39	℃
	Indoor pipe temperature / Liquid (TH2) on error occurring -39~88	-39~88 (When the temperature is 0°C or less, "–" and temperature are displayed by turns.) (Example) When –15°C; 0.5 secs. 0.5secs. 2 secs. -□ →15 →□□	℃
	Indoor pipe temperature / Cond./ Eva. (TH5) on error occurring -39~88	-39~88 (When the temperature is 0°C or less, "–" and temperature are displayed by turns.) (Example) When –15°C; 0.5 secs. 0.5secs. 2 secs. -□ →15 →□□	℃
	Outdoor pipe temperature / Cond./ Eva. (TH6) on error occurring -39~88	-39~88 (When the temperature is 0°C or less, "–" and temperature are displayed by turns.) (Example) When –15°C; 0.5 secs. 0.5secs. 2 secs. -□ →15 →□□	℃
	Outdoor outside temperature (TH7) on error occurring -39~88	-39~88 (When the temperature is 0°C or less, "–" and temperature are displayed by turns.) (Example) When –15°C; 0.5 secs. 0.5secs. 2 secs. -□ →15 →□□	℃
	Outdoor heat sink temperature (TH8) on error occurring -40~200	-40~200 (When the temperature is 0°C or less, "–" and temperature are displayed by turns.) (When the temperature is 100°C or more, hundreds digit, tens digit and ones digit are displayed by turns.)	℃

SW2 setting	Display detail	Explanation for display	Unit
	Discharge super heat on error occurring SHd 0~255 [Cooling = TH4-TH6 Heating = TH4-Th5]	0~255 (When the temperature is 100°C or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 150°C; 0.5 secs. 0.5secs. 2 secs. □1 →50 →□□	℃
	Sub cool on error occurring. SC 0~130 [Cooling = TH6-TH3 Heating = TH5-TH2]	0~130 (When the temperature is 100°C or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 115°C; 0.5 secs. 0.5secs. 2 secs. □1 →15 →□□	℃
	Thermostat-on time until error stops 0~999	0~999 (When it is 100 minutes or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 415 minutes; 0.5 secs. 0.5secs. 2 secs. □4 →15 →□□	Minute
	Indoor pipe temperature / Liquid (TH2 (3)) Indoor 3 -39~88	-39~88 (When the temperature is 0°C or less, "–" and temperature are displayed by turns.)	℃
	Indoor pipe temperature / Cond./ Eva. (TH5 (3)) Indoor 3 -39~88	-39~88 (When the temperature is 0°C or less, "–" and temperature are displayed by turns.) When there is no indoor unit, "00" is displayed.	℃
	Replacement operation ※If replacement operation is conducted even once, "1" is displayed. If replacement operation time is less than 2 hrs. "0" is displayed.	1: Conducted. 0: Not yet.	–
	U9 Error status during the Error postponement period	<table><tr><th>Description</th><th>Detection point</th><th>Display</th></tr><tr><td>Normal</td><td>—</td><td>00</td></tr><tr><td>Overvoltage error</td><td>Power circuit board</td><td>01</td></tr><tr><td>Undervoltage error</td><td>Controller circuit board</td><td>02</td></tr><tr><td>Input current sensor error</td><td>Controller circuit board</td><td>04</td></tr><tr><td>Abnormal power synchronous signal</td><td>Power circuit board</td><td>08</td></tr><tr><td>PFC error (RP1.6-3VHA) (Overvoltage / Undervoltage / Overcurrent)</td><td>Power circuit board</td><td>10</td></tr><tr><td>PFC/ ACTM error (RP1.6-6VHA) Undervoltage</td><td>Check CNAF wiring.(RP4-6YHA) Defective ACTM/ P.B.</td><td>20</td></tr></table> ※ Display examples for multiple errors: Overvoltage (01) + Undervoltage (02) = 03 Undervoltage (02) + Power-sync signal error (08) = 0A T phase interruption (04) + PFC error (10) = 14	Code display

11-11. SELECTING FUNCTIONS USING THE REMOTE CONTROLLER

Each function can be set according to necessity using the remote controller. The setting of function for each unit can only be done by the remote controller. Select function available from the table 1.

<Table 1> Function selections

(1) Functions available when setting the unit number to 00 (Select 00 referring to ④ setting the indoor unit number on Page 73.)

※1 The functions below are available only when the wired remote controller is used.The functions are not available for floor standing models.

Function	Settings	Mode No.	Setting No.	Initial setting (when sent from the factory)	Remarks
Power failure automatic recovery	OFF	01	1	●	The setting is applied to all the units in the same refrigerant system.
	ON		2		
Indoor temperature detecting	Operating indoor units (The average is considered as indoor temperature.)	02	1	●	
	Indoor unit with remote controller		2		
	Remote controller's internal sensor		3		
LOSSNAY connectivity	Not supported	03	1	●	
	Supported (indoor unit not equipped with outdoor air intake)		2		
	Supported (indoor unit equipped with outdoor air intake)		3		
Power supply voltage	240V	04	1		
	220V,230V		2	●	
Auto operating mode	Auto energy-saving operation ON	05	1	●	
	Auto energy-saving operation OFF		2		
Frost prevention temperature	2℃ (Normal)	15	1	●	
	3℃		2		
Humidifier control	When the compressor operates, the humidifier also operates.	16	1	●	
	When the fan operates, the humidifier also operates.		2		
Change of defrosting control	Standard	17	1	●	
	For high humidity		2		

(2) Functions available when setting the unit number to 01-03 or AL (07 in case of wireless remote controller)

- When setting functions for an indoor unit in an independent system, set the unit number to 01 referring to ④ setting the indoor unit number on Page 73.
- When setting functions for a simultaneous- Twin Triple indoor unit system, set the unit number to 01 to 03 for each indoor unit in case of selecting different functions for each unit referring to ④ setting the indoor unit number on Page 73.
- When setting the same functions for an entire simultaneous Twin Triple-indoor unit system, set refrigerant address to AL (07 in case of wireless remote controller) referring to ④ setting the indoor unit number on Page 73.

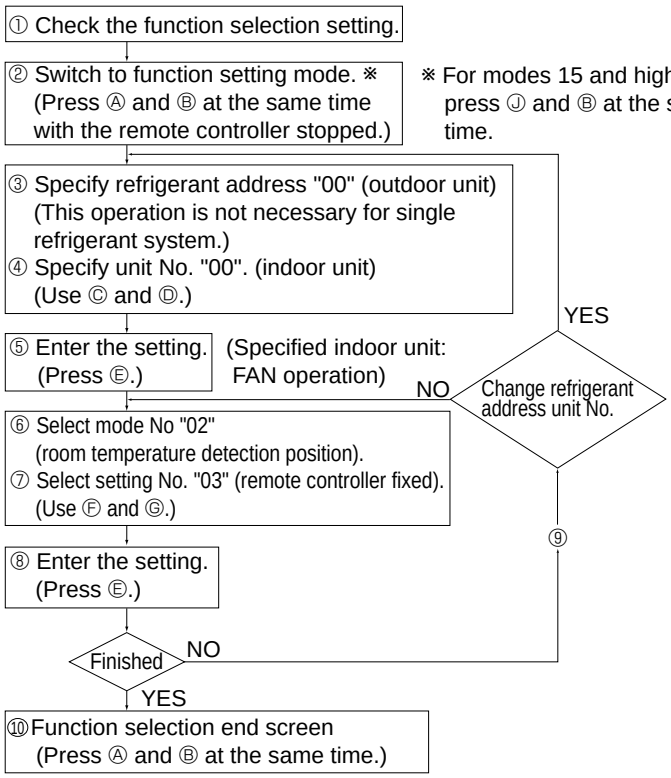
Function	Settings	Mode No.	Setting No.	Initial setting(when sent from the factory) Ceiling concealed−: Not available						Remarks
				4-way Cassette		Ceiling Concealed	Ceiling Suspended	Wall Mounted		
				PLA-AA (power-cassette)	PLA-AA.UK (power-cassette)	PEAD-EA PEAD-GA	PCA-GA	PKA-FAL	PKA-GAL	
Filter sign	100Hr	07	1					●	●	
	2500Hr		2	●	●		●			
	No filter sign indicator		3			●				
Fan speed	standard	08	1	●	●	—		—	—	
	High ceiling ①		2			—	●	—	—	
	High ceiling ②		3			—		—	—	
No. of air outlets	4 directions	09	1	●	●	—	—	—	—	
	3 directions		2			—	—	—	—	
	2 directions		3			—	—	—	—	
Installed options (high-performance filter)	Not supported	10	1	●	●	—	●	—	—	
	Supported		2			—		—	—	
Horizontal vane setting	No vanes	11	1			—		—	—	
	Equipped with vane (No.1 setting)		2	●		—	●	—	—	
	Equipped with vane (No.2 setting)		3		●	—		—	—	
Energy saving air flow (Heating mode)	Disabled	12	1	●	●	—	●	—	—	
	Enabled		2			—		—	—	
Direct add-on type humidifier (Only for power-cassette)	Not supported	13	1	●	●	—	—	—	—	
	Supported		2			—	—	—	—	
Swing	Not available	23	1			—				
	Available		2	●	●	—	●	●	●	
Set temperature in heating mode 4deg-up	Available	24	1	●	●	●	●	●	●	
	Not available		2							
Fan speed when the heating thermostat is OFF	Extra low	25	3	●	●		●	●	●	
	Low (4-speed model) Low (2-speed model)		1			●				
	Set fan speed		2							
Quiet operation mode of power cassette	Normal	26	1	●	●	—	—	—	—	
	Quiet		2			—	—	—	—	
Fan speed when the cooling thermostat is OFF	Set fan speed	27	1	●	●	●	●	●	●	
	Stop		2							
Detection of abnormality of the pipe temperature (P8)	Available	28	1	●	●	●	●	●	●	
	Not available		2							

11-11-1. Selecting functions using the wired remote controller

[Flow of function selection procedure]

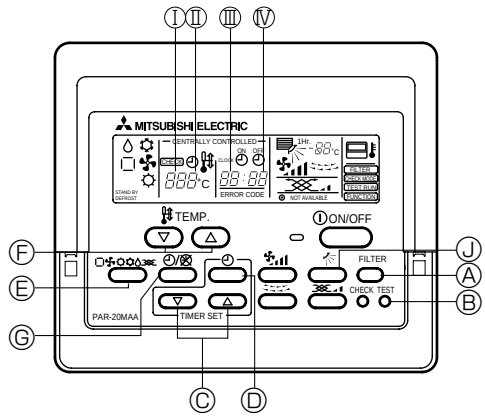
The flow of function selection procedure is shown below. The flow is described in case of setting indoor temperature detecting shown in table 1 on the preceding page. Refer to procedure ① to ⑩ when actually setting functions.

Selecting functions using the wired remote controller


① Check the function selection setting.
② Switch to function setting mode. ※
(Press Ⓐ and Ⓑ at the same time with the remote controller stopped.)
※ For modes 15 and higher, press Ⓙ and Ⓑ at the same time.
③ Specify refrigerant address "00" (outdoor unit)
(This operation is not necessary for single refrigerant system.)
④ Specify unit No. "00". (indoor unit)
(Use Ⓒ and Ⓓ.)
⑤ Enter the setting.
(Press Ⓔ.)
(Specified indoor unit: FAN operation)
YES
NO
Change refrigerant address unit No.
⑥ Select mode No "02"
(room temperature detection position).
⑦ Select setting No. "03" (remote controller fixed).
(Use Ⓕ and Ⓖ.)
⑨
⑧ Enter the setting.
(Press Ⓔ.)
Finished
NO
YES
⑩ Function selection end screen
(Press Ⓐ and Ⓑ at the same time.)

Wired type

Ⓘ Mode number
Ⓘ Setting number
Ⓘ Refrigerant address
Ⓘ Unit number



For mode 01 to 13, press A and B at the same time and for mode 15 to 28, press B and J to go to function select mode.

[Operating instructions]

① Checking the function settings

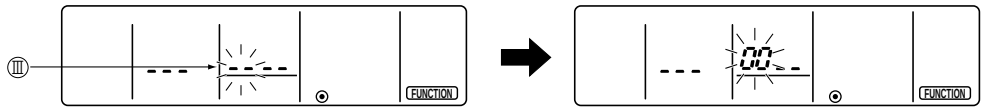
If you change the setting in the function setting procedure, the contents of setting will be changed for the designated mode. Change the setting after recording all the previous setting into the checklist of table 1 by following steps ② to ⑦. In addition, read the installation manual packed with indoor units to be informed of initial setting.

② Turning off the remote controller

Press the Ⓐ FILTER and Ⓑ TEST RUN buttons simultaneously and hold them for at least 2 seconds.
(For modes 15 and higher, press Ⓙ and Ⓑ simultaneously for at least 2 seconds.) FUNCTION will start to flash. After a while, the refrigerant address display will start to flash .

③ Setting the refrigerant address No. of outdoor unit

Press Ⓒ (△) (▽) TIMER SET button to select the refrigerant address from No.00 to No.15. (Set the refrigerant address to No.00 in case of single refrigerant grouping system.)



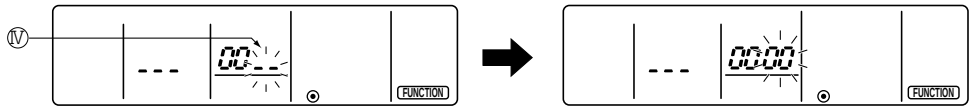
※ If the unit stops two seconds after the FUNCTION display starts to flash or [88] starts to flash in the room temperature display, a transmission problem may have occurred. Check to see if there are some sources of transmission interference (noise) nearby.

If you make a mistake during any points of this procedure, you can quit the function setting by pressing ⑩ then return to step ②.

④ Setting the indoor unit number

Press Ⓓ(CLOCK ON OFF) and [--] will start to flash in the unit number display (Ⅳ) .

Press Ⓒ ▲ ▼ (TIMER SET) button to select the unit number from 00, 01, 02, 03, 04, and AL.

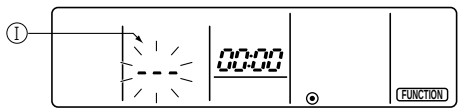


- Set the unit number to 00 if the mode such as power failure automatic recovery, indoor temperature detecting or LOSSNAY connectivity is desired to be selected.
- Select the unit number from 01 to 04 if the function setting is desired to be done for each of them individually.
- Set the unit number to AL if the function setting is desired to be done for all of units simultaneously.

⑤ Confirming the refrigerant address and indoor unit number

Press Ⓔ MODE button to confirm the refrigerant address and unit number.

After a while, [--] will flash in the mode number display (I).

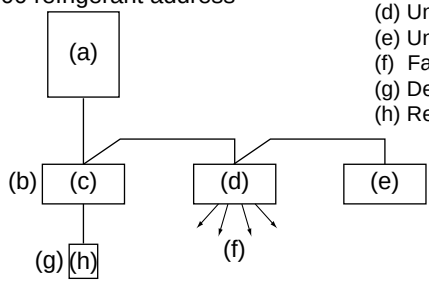


※If [88] appears in the room temperature display section, the selected refrigerant address does not exist in the system. Also, if [F] appears in the unit number display section, the selected unit number does not exist. Enter the correct refrigerant address and unit number at steps ② and ③.

Designated indoor unit starts fan draft operation by pressing Ⓔ MODE button. Check which indoor unit is designated for function setting by doing this. In addition, all the units of the selected refrigerant address start fan draft operation if the unit number is set to 00 or AL.

Example) When the refrigerant address is set to 00 and the unit number is 02;

Ⅲ 00 refrigerant address

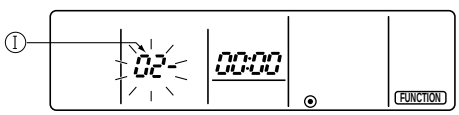


(a) Outdoor unit
(b) Indoor unit
(c) Unit number 01
(d) Unit number 02
(e) Unit number 03
(f) Fan draft
(g) Designation
(h) Remote controller

※If any undesignated indoor units start fan draft operation under multiple refrigerant grouping system, refrigerant addresses may be overlapped. Reassign refrigerant addresses at the DIP switch of the outdoor unit.

⑥ Selecting the mode number

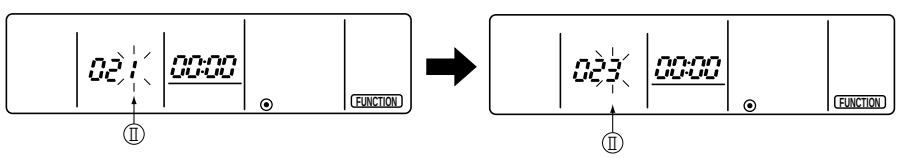
Press Ⓕ ▲ ▼ (TEMP) buttons to set the desired mode number. (It is possible to set the number of available mode only.)



⑦ Selecting the setting of designated mode

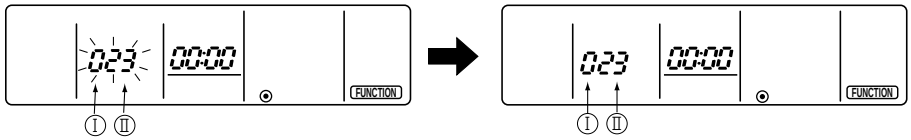
Press Ⓖ button, and the setting number will start to flash. Check the current status of the setting by doing this.

Press Ⓕ ▲ ▼ (TEMP) button to select the setting number.



⑧ Registering the settings from steps ③ to ⑦ into memory

The mode and setting numbers (Ⅰ)(Ⅱ) will start to flash when the MODE button Ⓔ is pressed and registration will begin. The numbers are set when the flashing stays lit.



※If [---] appears in the room temperature display as the mode/setting number, or if a flashing [88] display appears, a transmission problem may have occurred. Check to see if there are some sources of transmission interference (noise) nearby.

---

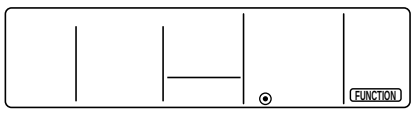
⑨ Registering other settings simultaneously

Repeat steps ③ to ⑧ to make other function settings.

---

⑩ Completing the function settings

Press Ⓐ FILTER and Ⓑ TEST RUN buttons simultaneously for at least two seconds. (For modes 15 and higher, press Ⓙ and Ⓑ simultaneously for at least 2 seconds.) After a while, the function selection screen will disappear and air conditioner OFF display will appear.



※Do not use the remote controller for 30 seconds after completing the function setting. (Any requests will be rejected.)

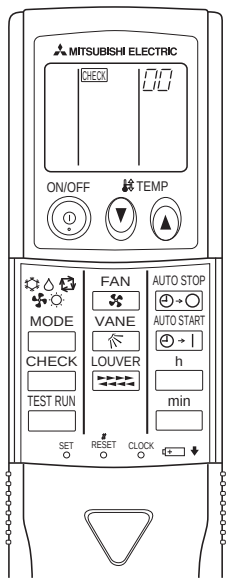
Note

Make sure to check all settings with ○ and etc. on the checklist of table 1 if you have changed the settings of indoor units by this procedure after installation construction.

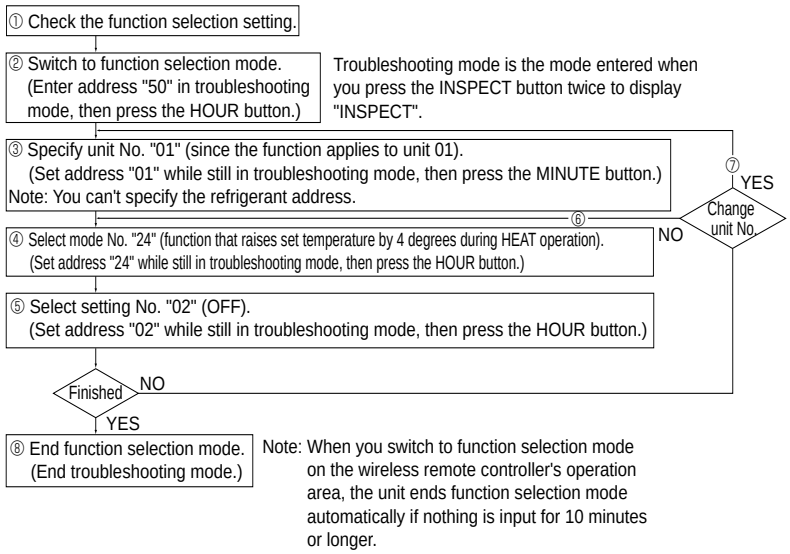
11-11-2. Selecting functions using the wireless remote controller (Type C)

Functions can be selected with the wireless remote controller. Function selection using wireless remote controller is available only for refrigerant system with wireless function. Refrigerant address cannot be specified by the wireless remote controller.

[Flow of function selection procedure]



The flow of the function selection procedure is shown below. This example shows how to turn off the function that raises the set temperature by 4 degrees during HEAT operation . The procedure is given after the flow chart.


① Check the function selection setting.
② Switch to function selection mode. (Enter address "50" in troubleshooting mode, then press the HOUR button.)
Troubleshooting mode is the mode entered when you press the INSPECT button twice to display "INSPECT".
③ Specify unit No. "01" (since the function applies to unit 01). (Set address "01" while still in troubleshooting mode, then press the MINUTE button.)
Note: You can't specify the refrigerant address.
⑦
YES
Change unit No.
⑥
NO
④ Select mode No. "24" (function that raises set temperature by 4 degrees during HEAT operation). (Set address "24" while still in troubleshooting mode, then press the HOUR button.)
⑤ Select setting No. "02" (OFF). (Set address "02" while still in troubleshooting mode, then press the HOUR button.)
Finished
NO
YES
⑧ End function selection mode. (End troubleshooting mode.)
Note: When you switch to function selection mode on the wireless remote controller's operation area, the unit ends function selection mode automatically if nothing is input for 10 minutes or longer.

[Operating instructions]

① Check the function settings.

② Press the CHECK button twice continuously. → CHECK is lit and “00” blinks.
Press the temp button once to set “50”. Direct the wireless remote controller toward the receiver of the indoor unit and press the h button.

③ Set the unit number.
Press the temp button to set the unit number. (Press “01” to specify the indoor unit whose unit number is 01.)
Direct the wireless remote controller toward the receiver of the indoor unit and press the min button.

(By setting unit number with the min button, specified indoor unit starts performing fan operation.
Detect which unit is assigned to which number using this function. If unit number is set to AL, all the indoor units in same refrigerant system start performing fan operation simultaneously.)

* If a unit number that cannot be recognized by the unit is entered, 3 beeps of 0.4 seconds will be heard. Reenter the unit number setting.
* If the signal was not received by the sensor, you will not hear a beep or a “double beep” may be heard. Reenter the unit number setting.

④ Select a mode.
Press the temp button to set a mode. Press “24” to turn on the function that raises the set temperature by 4 degree during heat operation. Direct the wireless remote controller toward the sensor of the indoor unit and press the h button.
→ The sensor-operation indicator will flash and beeps will be heard to indicate the current setting number.
Current setting number: 1 = 1 beep (one second)
2 = 2 beeps (one second each)
3 = 3 beeps (one second each)

* If a mode number that cannot be recognized by the unit is entered, 3 beeps of 0.4 seconds will be heard. Reenter the mode number.
* If the signal was not received by the sensor, you will not hear a beep or a “double beep” may be heard. Reenter the mode number.

⑤ Select the setting number.
Press the temp button to select the setting number. (02: Not available)
Direct the wireless remote controller toward the receiver of the indoor unit and press the h button.
→ The sensor-operation indicator will flash and beeps will be heard to indicate the the setting number.
Setting number: 1 = 2 beeps (0.4 seconds each)
2 = 2 beeps (0.4 seconds each, repeated twice)
3 = 2 beeps (0.4 seconds each, repeated three times)

* If a setting number that cannot be recognized by the unit is entered, the setting will turn back to the original setting.
* If the signal was not received by the sensor, you will not hear a beep or a “double beep” may be heard. Reenter the setting number.

⑥ Repeat steps ④ and ⑤ to make an additional setting without changing unit number.

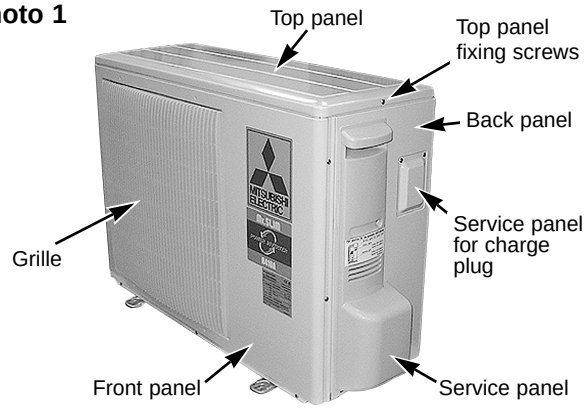
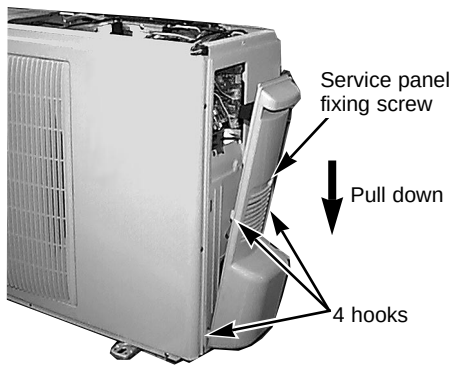
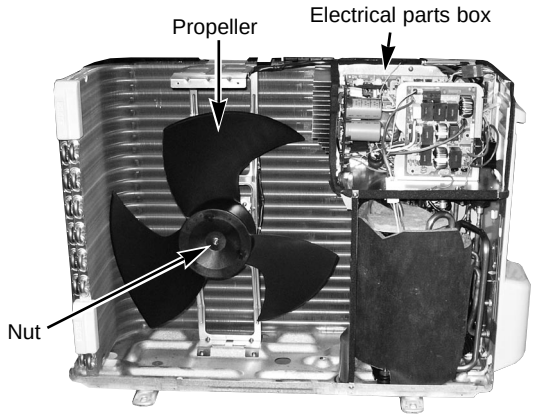
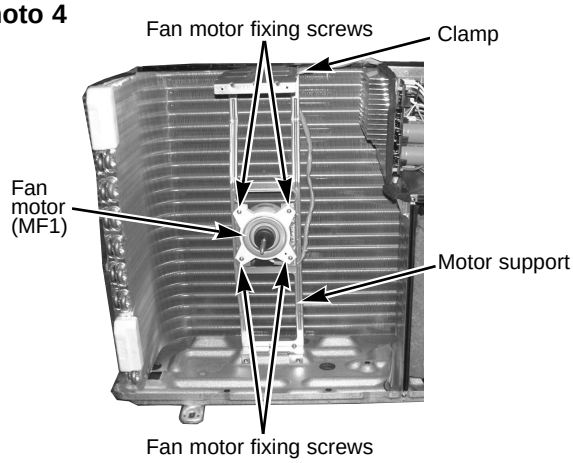
⑦ Repeat steps ③ to ⑤ to change unit number and make function settings on it.

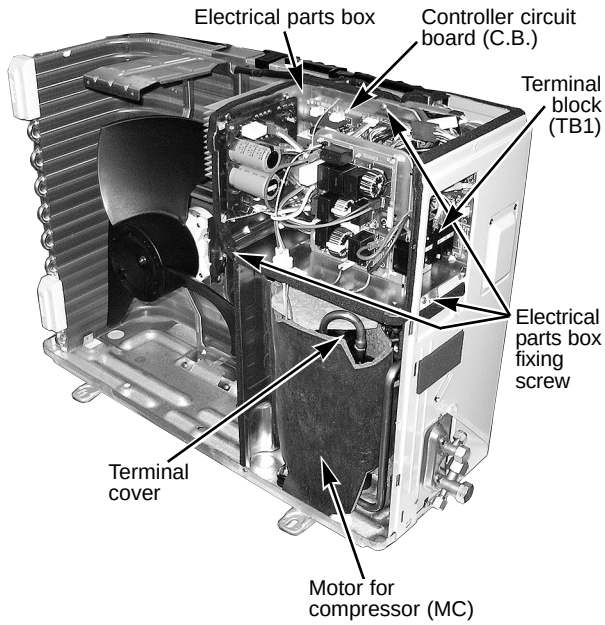
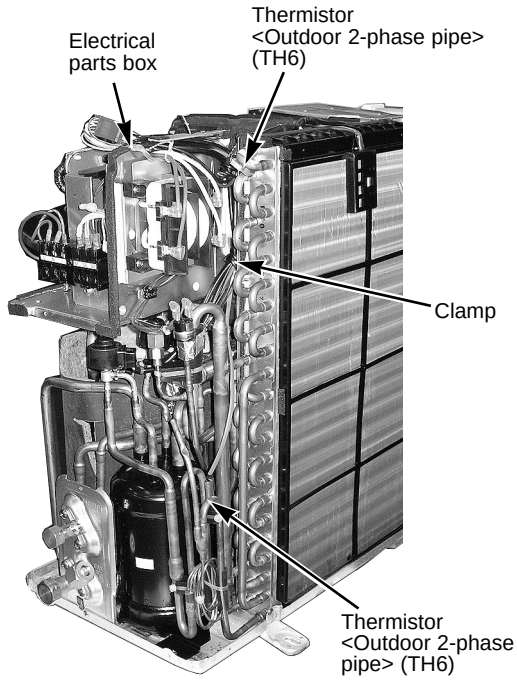
⑧ Complete the function settings
Press button.

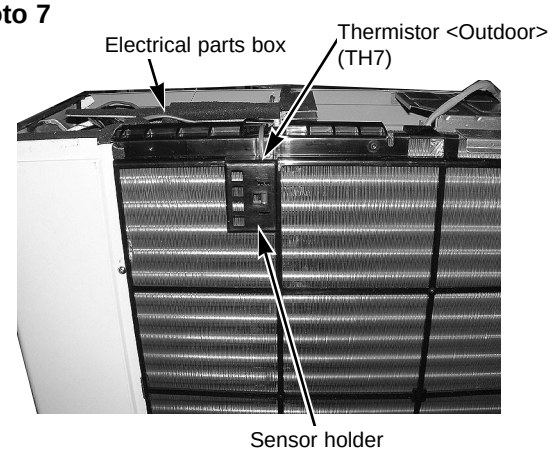
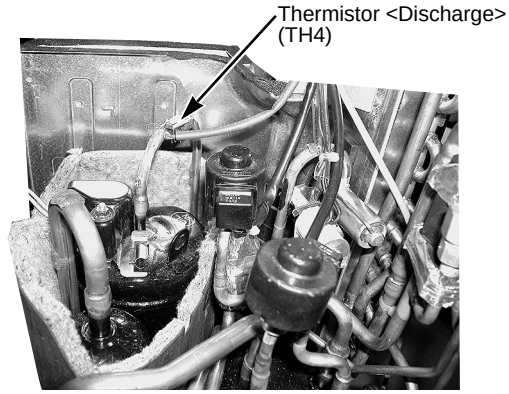
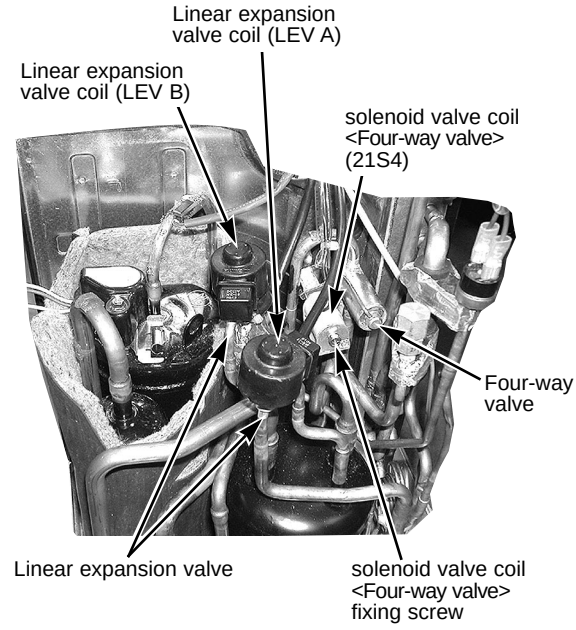
* Do not use the wireless remote controller for 30 seconds after completing the function setting.

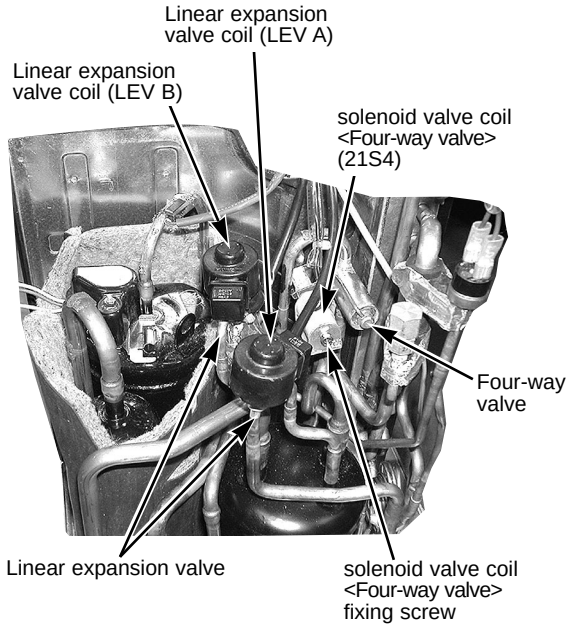
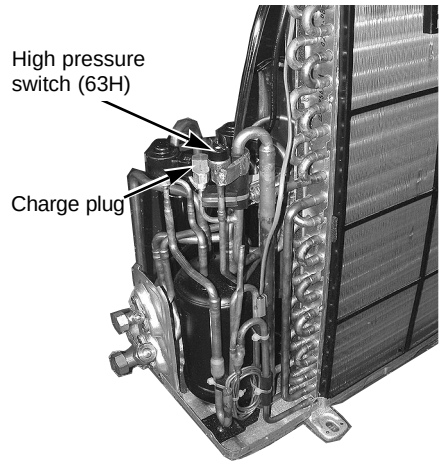
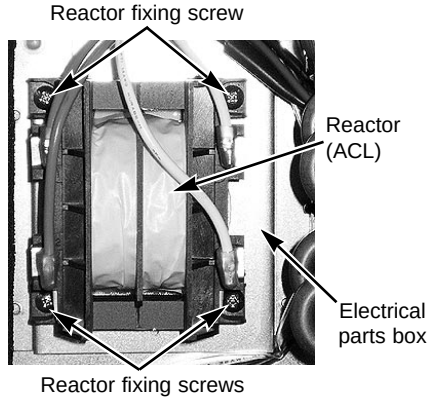
12 DISASSEMBLY PROCEDURE

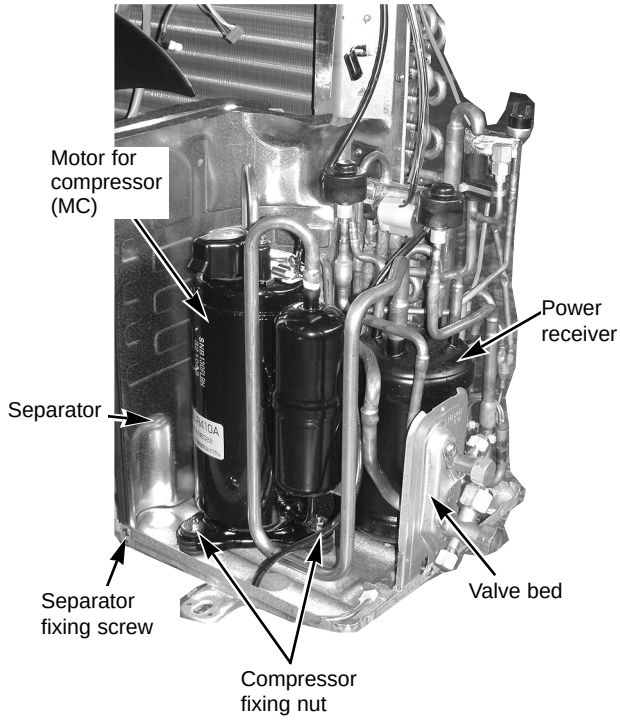
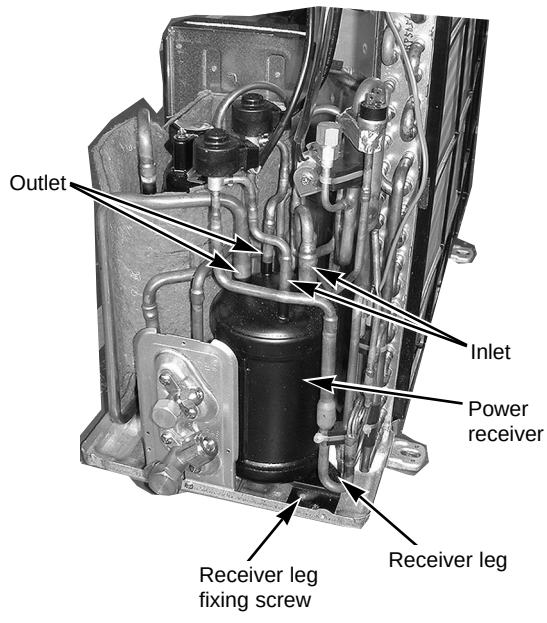
PUHZ-RP1.6VHA PUHZ-RP2VHA

OPERATING PROCEDURE	PHOTOS
1. Removing the top panel, service panel, front panel and back panel (1) Remove the top panel fixing screws (4 × 10), one from the right and two from the eft side, and detach the top panel. (2) Remove 1 service panel fixing screw (4 × 10) and detach the service panel by pulling it downward. (See photo 2.) (3) Remove the front panel fixing screws (4 × 10), 5 from the front, 2 from the right and 2 from the left side, and detach the front panel. (4) Remove the back panel fixing screws (4 × 10), 4 from the right and 3 from the rear side, and detach the back panel.	**Photo 1**  **Photo 2** 
2. Removing the fan motor (1) Remove the top panel. (See photo 1.) (2) Remove the front panel. (See photo 1.) (3) Remove 1 nut (M6, left-screw) and detach the propeller. (4) Disconnect the connectors, FAN11 and FAN12 on the controller circuit board in the electrical parts box. (5) Loosen the clamp for the lead wire in the motor support. (6) Remove 4 fan motor fixing screws (4 × 18) and detach the fan motor. (See photo 3.)	**Photo 3**  **Photo 4** 

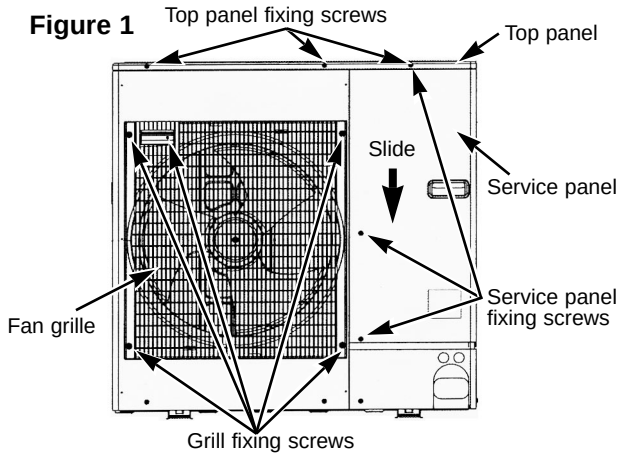
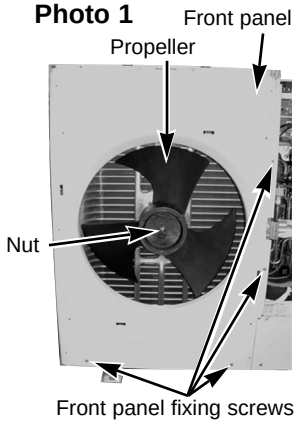
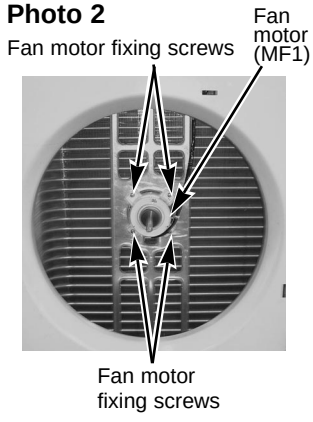
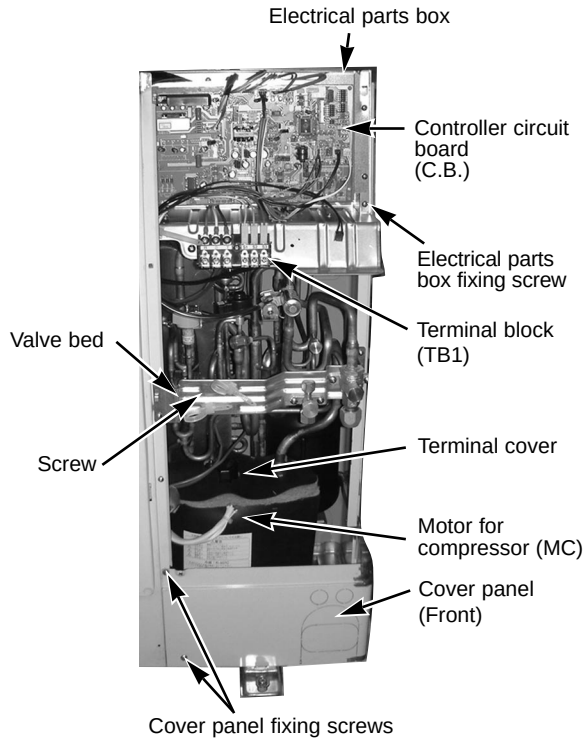
OPERATING PROCEDURE	PHOTOS
3. Removing the electrical parts box (1) Remove the service panel. (See photo 2.) (2) Remove the top panel. (See photo 1.) (3) Remove the front panel. (See photo 1.) (4) Disconnect the indoor/outdoor connecting wire from terminal block. (5) Remove all the following connectors from controller circuit board; fan motor, linear expansion valve, thermistor<Outdoor pipe>, thermistor<Discharge>, thermistor<Outdoor 2-phase pipe>, thermistor<Outdoor>, high pressure switch, four-way valve and bypass valve. Pull out the disconnected wire from the electrical parts box. <Diagram symbol in the connector housing> • Fan motor (FAN11 and FAN12) • Linear expansion valve (LEV-A and LEV-B) • Thermistor <Outdoor pipe> (TH3) • Thermistor <Discharge> (TH4) • Thermistor <Outdoor 2-phase pipe, Outdoor> (TH6/7) • High pressure switch (63H) (6) Remove the terminal cover and disconnect the compressor lead wire. (7) Remove the electrical parts box fixing screws, 1 from the front, the right and the rear side, and detach the electrical parts box by pulling it upward.	**Photo 5** 
4. Removing the thermistor <Outdoor 2-phase pipe> (TH6) and thermistor <Outdoor pipe> (TH3) (1) Remove the service panel. (See photo 2.) (2) Remove the top panel. (See photo 1.) (3) Remove the front panel. (See photo 1.) (4) Remove the back panel fixing screws, 4 from the right and 3 from the rear side, and detach the back panel. (See photo 1.) (5) Disconnect the connector TH3 (white) or TH6/7 (red) on the controller circuit board in the electrical parts box. (6) Loosen the clamp for the lead wire in the rear of the electrical parts box. (7) Pull out the thermistor <Outdoor pipe> (TH3) and thermistor <Outdoor 2-phase pipe> (TH6) from the sensor holder. **Note: In case of replacing the thermistor <Outdoor 2-phase pipe> (TH6), replace it together with the thermistor <Outdoor> (TH7), since they are combined together. Refer to No. 5 below to remove the thermistor <Outdoor> (TH7).**	**Photo 6** 

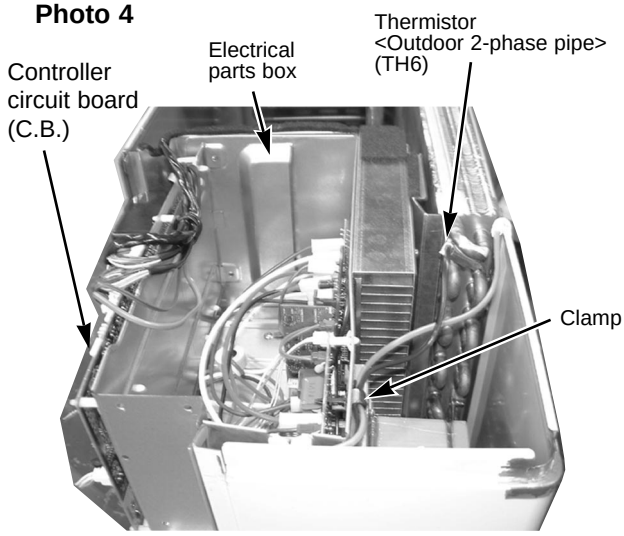
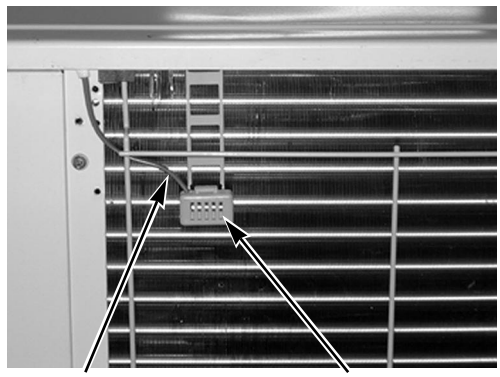
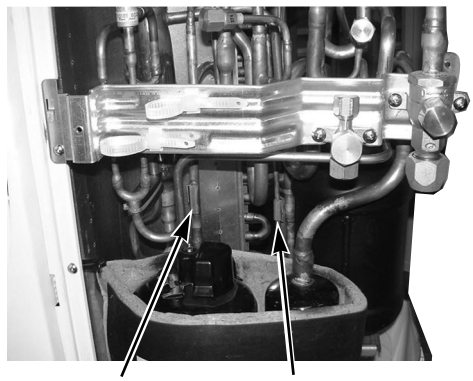
OPERATING PROCEDURE	PHOTOS
5. Removing the thermistor <Outdoor> (TH7) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Disconnect the connector TH7 (red) on the controller circuit board in the electrical parts box. (4) Loosen the clamp for the lead wire in the rear of the electrical parts box. (See photo 4.) (5) Pull out the thermistor <Outdoor> (TH7) from the sensor holder. **Note: In case of replacing thermistor <Outdoor> (TH7), replace it together with thermistor <Outdoor 2-phase pipe> (TH6), since they are combined together. Refer to No.4 above to remove thermistor <Outdoor 2-phase pipe>.**	**Photo 7** 
6. Removing the thermistor <Discharge> (TH4) (1) Remove the service panel. (See photo 2.) (2) Remove the top panel. (See photo 1.) (3) Remove the front panel. (See photo 1.) (4) Remove the back panel. (See photo 1.) (5) Remove the electrical parts box. (See photo 5.) (6) Pull out the thermistor <Discharge> (TH4) from the sensor holder. (See photo 8.) ※ When attaching the thermistor <Discharge> (TH4), place it to its original position.	**Photo 8** 
7. Removing the solenoid valve coil <Four-way valve> (21S4) and linear expansion valve coil (LEV (A), LEV (B)) (1) Remove the service panel. (See photo 2.) (2) Remove the top panel. (See photo 1.) (3) Remove the front panel. (See photo 1.) (4) Remove the back panel. (See photo 1.) (5) Remove the electrical parts box. (See photo 5.) [Removing the solenoid valve coil <Four-way valve> (21S4)] (6) Remove 1 solenoid valve coil <Four-way valve> fixing screw (M4 × 6). (7) Remove the solenoid valve coil <Four-way valve> by sliding the coil to the right. [Removing the linear expansion valve coil (LEV (A), LEV (B))] (6) Remove the linear expansion valve coil by sliding the coil upward.	**Photo 9** 

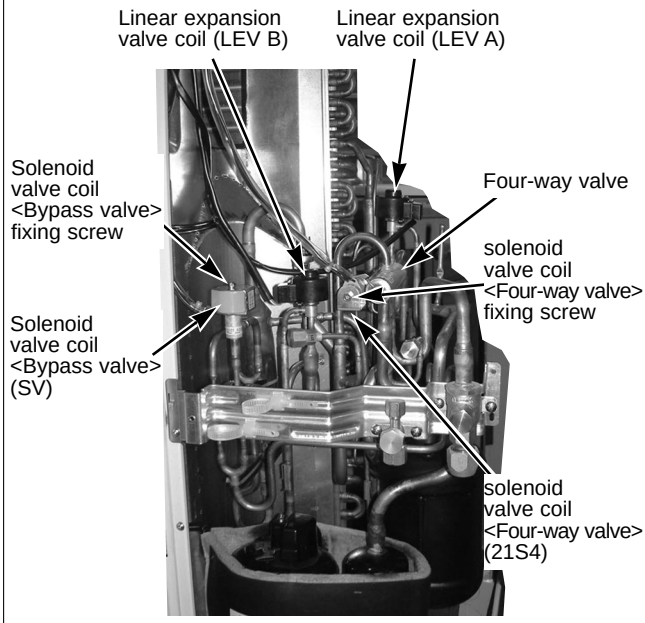
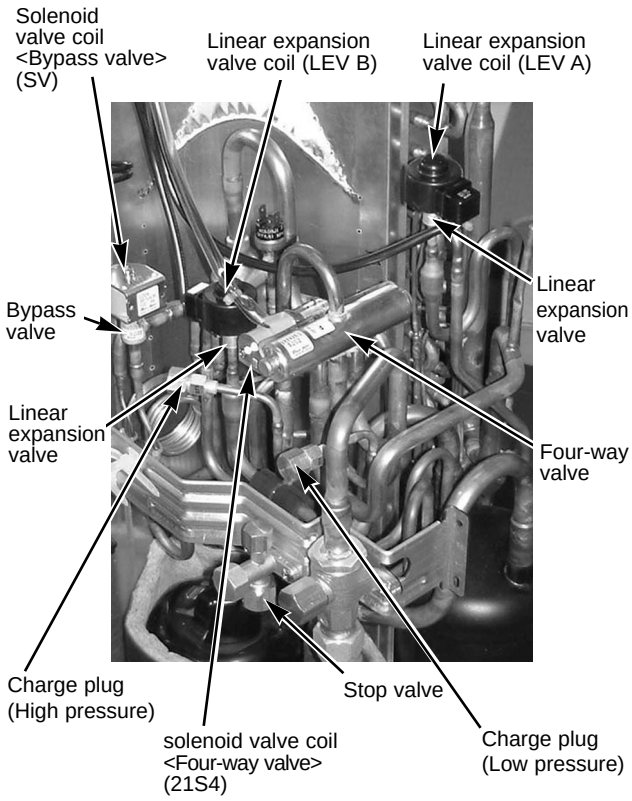
OPERATING PROCEDURE	PHOTOS
8. Removing the four-way valve (1) Remove the service panel. (See photo 2.) (2) Remove the top panel. (See photo 1.) (3) Remove the front panel. (See photo 1.) (4) Remove the back panel. (See photo 1.) (5) Remove the electrical parts box. (See photo 5.) (6) Remove the solenoid valve coil <Four-way valve> (See photo 8.) (7) Collect the refrigerant. (8) Remove the welded part of four-way valve. **Note 1: Collect refrigerant without spreading it in the air.** **Note 2: The welded part can be removed easily by removing the right side panel.** **Note 3: When installing the four-way valve, cover it with a we cloth to prevent it from heating (120°C or more), then braze the pipes so that the inside of pipes are not oxidized.**	**Photo 10** 
9. Removing linear expansion valve (1) Remove the service panel. (See photo 2.) (2) Remove the top panel. (See photo 1.) (3) Remove the front panel. (See photo 1.) (4) Remove the back panel. (See photo 1.) (5) Remove the electrical parts box. (See photo 5.) (6) Remove the linear expansion valve coil . (See photo 8.) (7) Collect the refrigerant. (8) Remove the welded part of linear expansion valve. **Note 1: Collect refrigerant without spreading it in the air.** **Note 2: The welded part can be removed easily by removing the back panel.** **Note 3: When installing the linear expansion valve, cover it with a wet cloth to prevent it from heating (120°C or more), then braze the pipes so that the inside of pipes are not oxidized.**	
10. Removing the high pressure switch (63H) (1) Remove the service panel. (See photo 2.) (2) Remove the top panel. (See photo 1.) (3) Remove the front panel. (See photo 1.) (4) Remove the back panel. (See photo 1.) (5) Remove the electrical parts box. (See photo 5.) (6) Pull out the lead wire of high pressure switch. (7) Collect the refrigerant. (8) Remove the welded part of high pressure switch. **Note 1: Collect refrigerant without spreading it in the air.** **Note 2: The welded part can be removed easily by removing the back panel.** **Note 3: When installing the high pressure switch, cover it with a wet cloth to prevent it from heating (100°C or more), then braze the pipes so that the inside of pipes are not oxidized.**	**Photo 11** 
11. Removing the reactor (ACL) (1) Remove the service panel. (See photo 2.) (2) Remove the top panel. (See photo 1.) (3) Remove the front panel. (See photo 1.) (4) Remove the back panel. (See photo 1.) (5) Remove 3 reactor fixing screws (4 × 20) and remove the reactor. ※ The reactor is attached to the rear of the electrical parts box.	**Photo 12** 

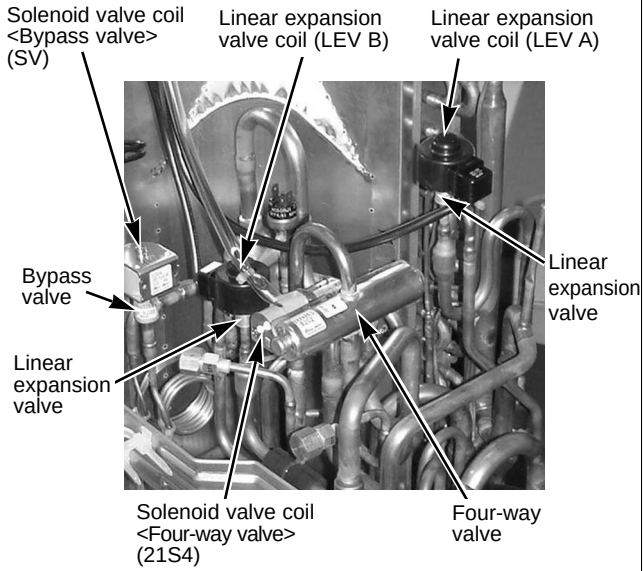
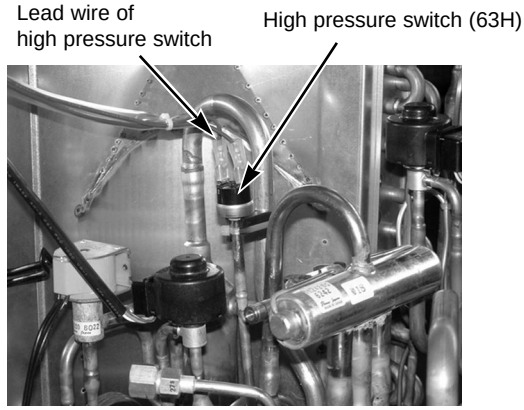
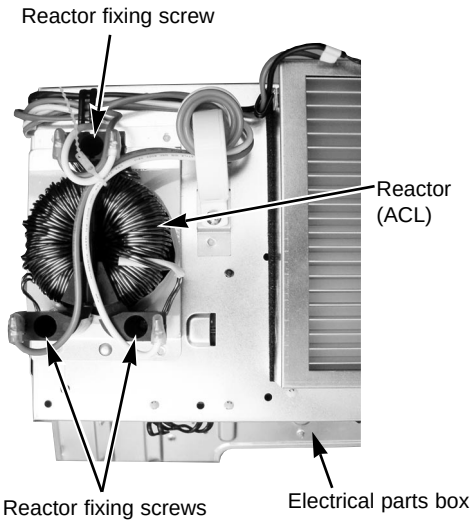
OPERATING PROCEDURE	PHOTOS
12. Removing the motor for compressor (MC) (1) Remove the service panel. (See photo 2.) (2) Remove the top panel. (See photo 1.) (3) Remove the front panel. (See photo 1.) (4) Remove the back panel. (See photo 1.) (5) Remove the electrical parts box. (See photo 5.) (6) Remove 3 separator fixing screws (4 × 10) and remove the separator. (7) Collect the refrigerant. (8) Remove 3 compressor fixing nuts by using a spanner or a monkey wrench. (9) Remove the welded pipe of motor for compressor inlet and outlet. **Note: Collect refrigerant without spreading it in the air.**	**Photo 13** 
13. Removing the power receiver (1) Remove the service panel. (See photo 2.) (2) Remove the top panel. (See photo 1.) (3) Remove the front panel. (See photo 1.) (4) Remove the back panel. (See photo 1.) (5) Remove the electrical parts box. (See photo 5.) (6) Collect the refrigerant. (7) Remove 4 welded pipes of power receiver inlet and outlet. (8) Remove 2 receiver leg fixing screws (4 × 10). (9) Remove the power receiver together with the receiver leg. **Note: Collect refrigerant without spreading it in the air.**	**Photo 14** 

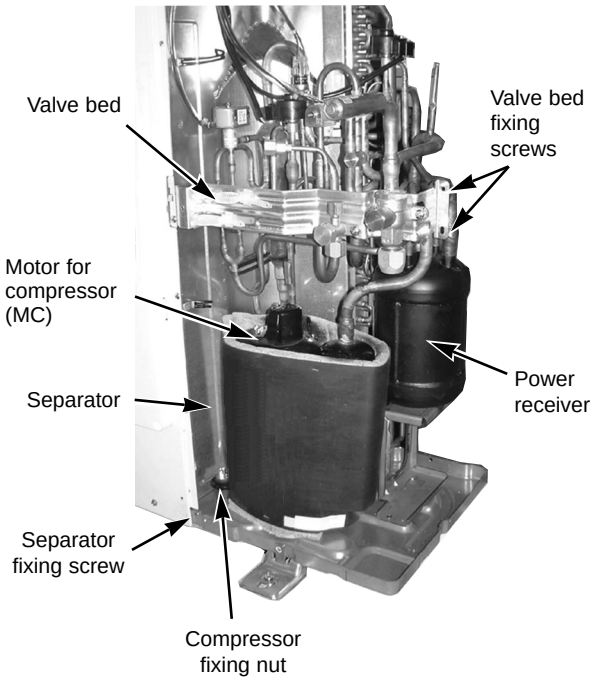
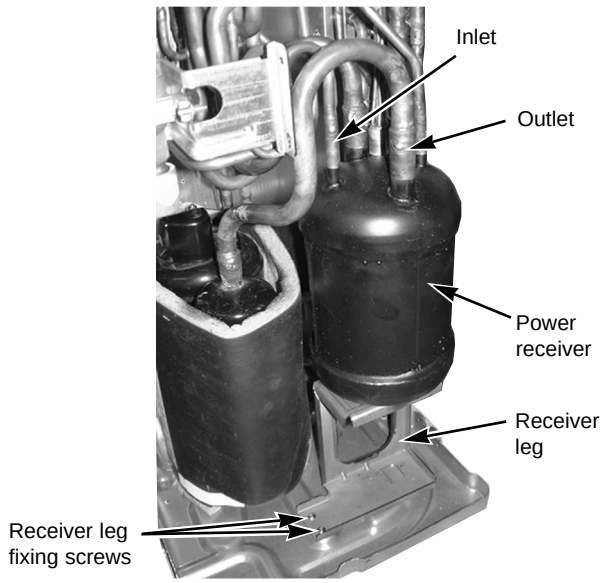
PUHZ-RP2.5VHA PUHZ-RP2.5VHA$_1$ PUHZ-RP3VHA PUHZ-RP3VHA$_1$

OPERATING PROCEDURE	PHOTOS & ILLUSTRATION
1. Removing the service panel and top panel (1) Remove 3 service panel fixing screws (5 × 10) and slide the hook on the right downward to remove the service panel. (2) Remove screws (3 for front, 3 for rear/5 × 10) of the top panel and remove it.	**Figure 1** 
2. Removing the fan motor (MF1) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove 5 fan grille fixing screws (5 × 10) to detach the fan grille. (See figure 1.) (4) Remove a nut (for right handed screw of M6) to detach the propeller. (See photo 1.) (5) Disconnect the connectors, FAN11 and FAN12, on controller circuit board in electrical parts box. (6) Remove 4 fan motor fixing screws (5 × 25) to detach the fan motor. (See photo 2.)	**Photo 1**  **Photo 2** 
3. Removing the electrical parts box (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Disconnect the indoor/outdoor connecting wire from terminal block. (4) Remove all the following connectors from controller circuit board; fan motor, linear expansion valve, thermistor<Outdoor pipe>, thermistor<Discharge>, thermistor<Outdoor 2-phase pipe>, thermistor<Outdoor>, thermistor<Heat sink>, high pressure switch, four-way valve and bypass valve. Then remove a screw (4 × 8) from the valve bad to remove the lead wire. Pull out the disconnected wire from the electrical parts box. <Diagram symbol in the connector housing> • Fan motor (FAN11 and FAN12) • Linear expansion valve (LEV-A and LEV-B) • Thermistor <Outdoor pipe> (TH3) • Thermistor <Discharge> (TH4) • Thermistor <Outdoor 2-phase pipe, Outdoor> (TH6/7) • Thermistor <Heat sink> (CN3) • High pressure switch (63H) • Solenoid valve coil <Four-way valve> (21S4) • Solenoid valve coil <Bypass valve> (SV2) (5) Remove the terminal cover and disconnect the compressor lead wire. (6) Remove an electrical parts box fixing screw (4 × 10) and detach the electrical parts box by pulling it upward. The electrical parts box is fixed with 2 hooks on the left and 1 hook on the right.	**Photo 3** 

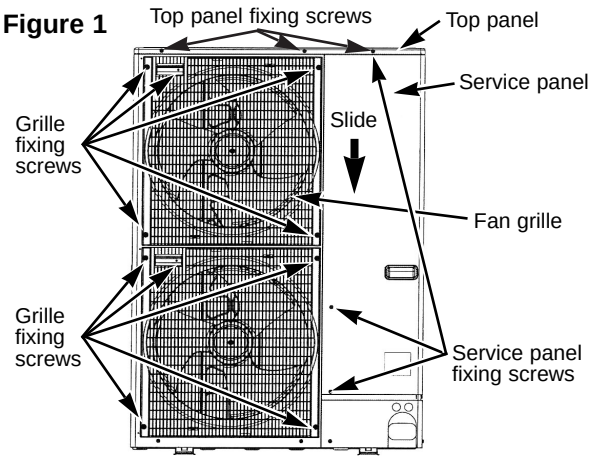
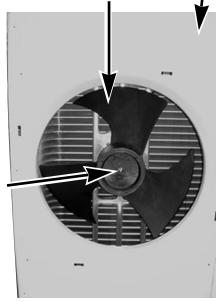
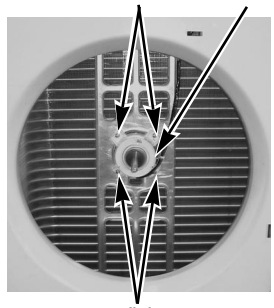
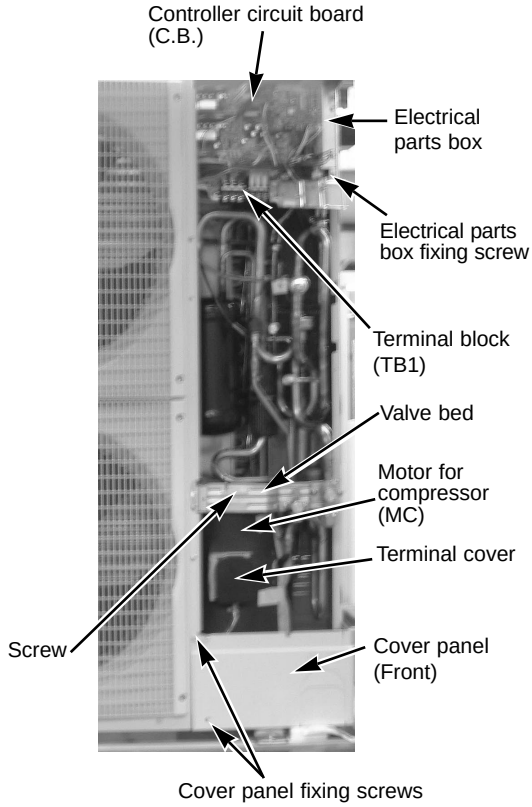
OPERATING PROCEDURE	PHOTOS
4. Removing the thermistor <Outdoor 2-phase pipe> (TH6) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Disconnect the connectors, TH6 and TH7 (red), on the controller circuit board in the electrical parts box. (4) Loosen the clamp for the lead wire in the rear of the electrical parts box. (5) Pull out the thermistor <Outdoor 2-phase pipe> (TH6) from the sensor holder. **Note: In case of replacing thermistor <Outdoor 2-phase pipe> (TH6), replace it together with thermistor <Outdoor> (TH7), since they are combined together. Refer to No.5 below to remove thermistor <Outdoor>.**	**Photo 4** 
5. Removing the thermistor <Outdoor> (TH7) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Disconnect the connector TH7 (red) on the controller circuit board in the electrical parts box. (4) Loosen the clamp for the lead wire in the rear of the electrical parts box. (See photo 4.) (5) Pull out the thermistor <Outdoor> (TH7) from the sensor holder. **Note: In case of replacing thermistor <Outdoor> (TH7), replace it together with thermistor <Outdoor 2-phase pipe> (TH6), since they are combined together. Refer to No.4 above to remove thermistor <Outdoor 2-phase pipe>.**	**Photo 5** 
6. Removing the thermistor <Outdoor pipe> (TH3) and thermistor <Discharge> (TH4) (1) Remove the service panel. (See figure 1.) (2) Disconnect the connectors, TH3 (white) and TH4 (white), on the controller circuit board in the electrical parts box. (3) Loosen the clamp for the lead wire in the rear of the electrical parts box. (See photo 4.) (4) Pull out the thermistor <Outdoor pipe> (TH3) and thermistor <Discharge> (TH4) from the sensor holder.	**Photo 6** 

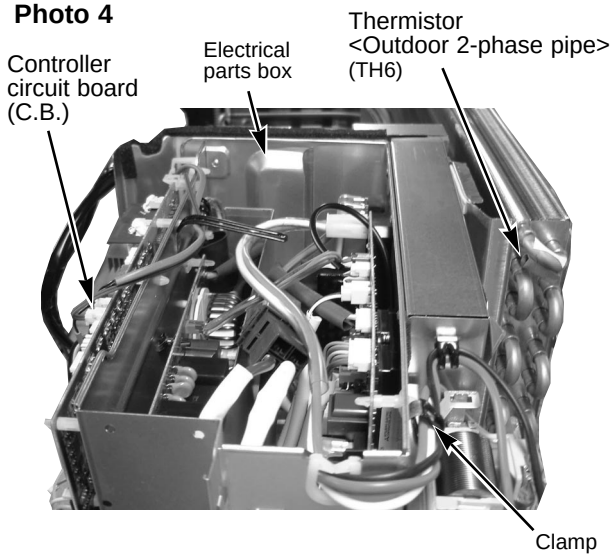
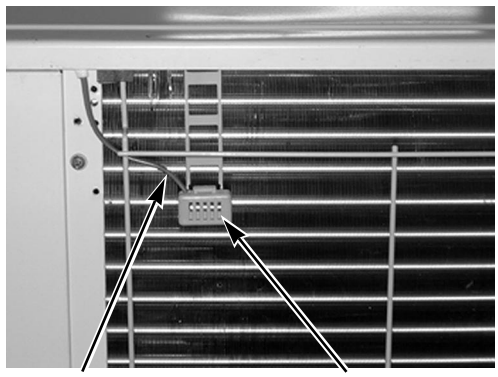
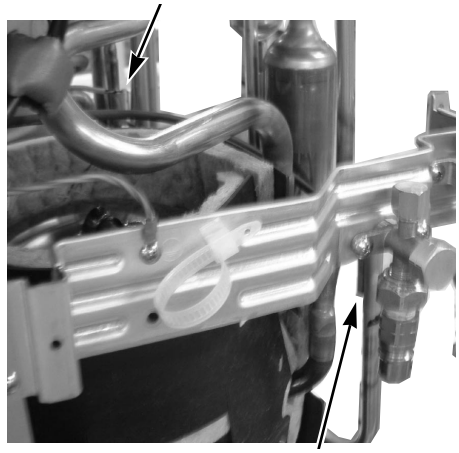
OPERATING PROCEDURE	PHOTOS
7. Removing the solenoid valve coil <Four-way valve> (21S4), linear expansion valve coil (LEV(A), LEV(B)) and solenoid valve coil <Bypass valve> (SV) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove the electrical parts box. (See photo 3.) **[Removing the solenoid valve coil <Four-way valve>]** (4) Remove solenoid valve coil <Four-way valve> fixing screw (M4 × 6). (5) Remove the solenoid valve coil <Four-way valve> by sliding the coil toward you. (6) Disconnect the connector 21S4 (green) on the controller board in the electrical parts box. **[Removing the linear expansion valve coil]** (4) Remove the linear expansion valve coil by sliding the coil upward. (5) Disconnect the connectors, LEV A (white) and LEV B (red), on the controller circuit board in the electrical parts box. **[Removing the solenoid valve coil <Bypass valve>]** (4) Remove the solenoid valve coil <Bypass valve> fixing screw (M4 × 6). (5) Remove the solenoid valve coil <Bypass valve> by sliding the coil upward. (6) Disconnect the connector SV2 (blue) on the controller circuit board in the electrical parts box.	**Photo 7** 
8. Removing the four-way valve (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove the electrical parts box. (See photo 3.) (4) Remove 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed. (5) Remove 3 right side panel fixing screw (5 × 10) in the rear of the unit and then remove the right side panel. (6) Remove the solenoid valve coil <Four-way valve>. (See photo 7.) (7) Collect the refrigerant. (8) Remove the welded part of four-way valve. **Note 1: Collect refrigerant without spreading it in the air.** **Note 2: The welded part can be removed easily by removing the right side panel.** **Note 3: When installing the four-way valve, cover it with a wet cloth to prevent it from heating (120°C or more), then braze the pipes so that the inside of pipes are not oxidized.**	**Photo 8** 
9. Removing the linear expansion valve (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove the electrical parts box. (See photo 3.) (4) Remove 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed. (5) Remove 3 right side panel fixing screw (5 × 10) in the rear of the unit and then remove the right side panel. (6) Remove the linear expansion valve. (See photo 7.) (7) Collect the refrigerant. (8) Remove the welded part of linear expansion valve. **Note 1: Collect refrigerant without spreading it in the air.** **Note 2: The welded part can be removed easily by removing the right side panel.** **Note 3: When installing the linear expansion valve, cover it with a wet cloth to prevent it from heating (120°C or more), then braze the pipes so that the inside of pip-es are not oxidized.**	

OPERATING PROCEDURE	PHOTOS
10. Removing the bypass valve (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove the electrical parts box. (See photo 3.) (4) Remove 3 right side panel fixing screws (5 × 10) in the rear of the unit and remove the right side panel. (5) Remove the bypass valve solenoid coil. (See photo 7.). (6) Collect the refrigerant. (7) Remove the welded part of bypass valve. **Note 1: Collect refrigerant without spreading it in the air.** **Note 2: The welded part can be removed easily by removing the right side panel.**	**Photo 9** 
11. Removing the high pressure switch (63H) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove the electrical parts box. (See photo 3.) (4) Remove 3 right side panel fixing screws (5 × 10) in the rear of the unit and remove the right side panel. (5) Pull out the lead wire of high pressure switch. (6) Collect the refrigerant. (7) Remove the welded part of high pressure switch. **Note 1: Collect refrigerant without spreading it in the air.** **Note 2: The welded part can be removed easily by removing the right side panel.** **Note 3: When installing the high pressure switch, cover it with a wet cloth to prevent it from heating (100°C or more), then braze the pipes so that the inside of pipes are not oxidized.**	**Photo 10** 
12. Removing the reactor (ACL) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove the electrical parts box. (See photo 3.) (4) Remove 3 reactor fixing screws (4 × 16) and remove the reactor. ※ The reactor is attached to the rear of the electrical parts box.	**Photo 11** 

OPERATING PROCEDURE	PHOTOS
13. Removing the motor for compressor (MC) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove 2 front cover panel fixing screws (5 × 10) and remove the front cover panel. (See photo 3.) (4) Remove 2 back cover panel fixing screws (5 × 10) and remove the back cover panel. (5) Remove the electrical parts box. (See photo 3.) (6) Remove 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed. (7) Remove 3 right side panel fixing screw (5 × 10) in the rear of the unit and then remove the right side panel. (8) Remove 3 separator fixing screws (4 × 10) and remove the separator. (9) Collect the refrigerant. (10) Remove the 3 points of the motor for compressor fixing nut using a spanner or a monkey wrench. (11) Remove the welded pipe of motor for compressor inlet and outlet and then remove the compressor. **Note: Collect refrigerant without spreading it in the air.**	**Photo 12** 
14. Removing the power receiver (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove 2 front cover panel fixing screws (5 × 10) and remove the front cover panel. (See photo 3.) (4) Remove 2 back cover panel fixing screws (5 × 10) and remove the back cover panel. (5) Remove the electrical parts box. (See photo 3.) (6) Remove 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed. (7) Remove 3 right side panel fixing screw (5 × 10) in the rear of the unit and then remove the right side panel. (8) Collect the refrigerant. (9) Remove 4 welded pipes of power receiver inlet and outlet. (10) Remove 2 receiver leg fixing screws (4 × 10). **Note: Collect refrigerant without spreading it in the air.**	**Photo 13** 

PUHZ-RP4VHA PUHZ-RP5VHA PUHZ-RP6VHA

OPERATING PROCEDURE	PHOTOS & ILLUSTRATION
1. Removing the service panel and top panel (1) Remove 3 service panel fixing screws (5 × 10) and slide the hook on the right downward to remove the service panel. (2) Remove screws (3 for front, 3 for rear/5 × 10) of the top panel and remove it.	**Figure 1** 
2. Removing the fan motor (MF1, MF2) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove 5 fan grille fixing screws (5 × 10) to detach the fan grille. (See figure 1.) (4) Remove a nut (for right handed screw of M6) to detach the propeller. (See photo 1.) (5) Disconnect the connectors, FAN11, FAN12, FAN21 and FAN 22 on controller circuit board in electrical parts box. (6) Remove 4 fan motor fixing screws (5 × 25) to detach the fan motor. (See photo 2.)	**Photo 1** Front panel Propeller Nut  **Photo 2** Fan motor fixing screws Fan motor  Fan motor fixing screws
3. Removing the electrical parts box (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Disconnect the indoor/outdoor connecting wire from terminal block. (4) Remove all the following connectors from controller circuit board; fan motor, linear expansion valve, thermistor <Outdoor pipe>, thermistor <Discharge>, thermistor <Outdoor 2-phase pipe>, thermistor <Outdoor>, high pressure switch, low pressure switch, solenoid valve coil <Four-way valve> and solenoid valve coil <Bypass valve>. Then remove a screw (4 × 8) from the valve bad to remove the lead wire. Pull out the disconnected wire from the electrical parts box. <Diagram symbol in the connector housing> • Fan motor (FAN11, FAN12, FAN21 and FAN22) • Linear expansion valve (LEV-A and LEV-B) • Thermistor <Outdoor pipe> (TH3) • Thermistor <Discharge> (TH4) • Thermistor <Outdoor 2-phase pipe, Outdoor> (TH6/7) • High pressure switch (63H) • Low pressure switch (63L) • Solenoid valve coil <Four-way valve> (21S4) • Solenoid valve coil <Bypass valve> (SV2) (5) Remove the terminal cover and disconnect the compressor lead wire. (6) Remove an electrical parts box fixing screw (4 × 10) and detach the electrical parts box by pulling it upward. The electrical parts box is fixed with 2 hooks on the left and 1 hook on the right.	**Photo 3** 

OPERATING PROCEDURE	PHOTOS
4. Removing the thermistor <Outdoor 2-phase pipe> (TH6) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Disconnect the connectors, TH6 and TH7 (red), on the controller circuit board in the electrical parts box. (4) Loosen the clamp for the lead wire in the rear of the electrical parts box. (5) Pull out the thermistor <Outdoor 2-phase pipe> (TH6) from the sensor holder. **Note: In case of replacing thermistor <Outdoor 2-phase pipe> (TH6), replace it together with thermistor <Outdoor> (TH7) since they are combined together. Refer to No.5 below to remove thermistor <Outdoor>.**	**Photo 4** 
5. Removing the thermistor <Outdoor> (TH7) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Disconnect the connector TH7 (red) on the controller circuit board in the electrical parts box. (4) Loosen the clamp for the lead wire in the rear of the electrical parts box. (See photo 4.) (5) Pull out the thermistor <Outdoor> (TH7) from the sensor holder. **Note: In case of replacing thermistor <Outdoor> (TH7), replace it together with thermistor <Outdoor 2-phase pipe> (TH6), since they are combined together. Refer to No.4 above to remove thermistor <Outdoor 2-phase pipe>.**	**Photo 5** 
6. Removing the thermistor <Outdoor pipe> (TH3) and thermistor <Discharge> (TH4) (1) Remove the service panel. (See figure 1.) (2) Disconnect the connectors, TH3 (white) and TH4 (white), on the controller circuit board in the electrical parts box. (3) Loosen the clamp for the lead wire in the rear of the electrical parts box. (See photo 4.) (4) Pull out the thermistor <Outdoor pipe> (TH3) and thermistor <Discharge> (TH4) from the sensor holder.	**Photo 6** 

OPERATING PROCEDURE

7. Removing the solenoid valve coil <Four-way valve> (21S4), and linear expansion valve coil (LEV(A), LEV(B))

(1) Remove the service panel. (See figure 1.)
(2) Remove the top panel. (See figure 1.)

[Removing the solenoid valve coil <Four-way valve>]

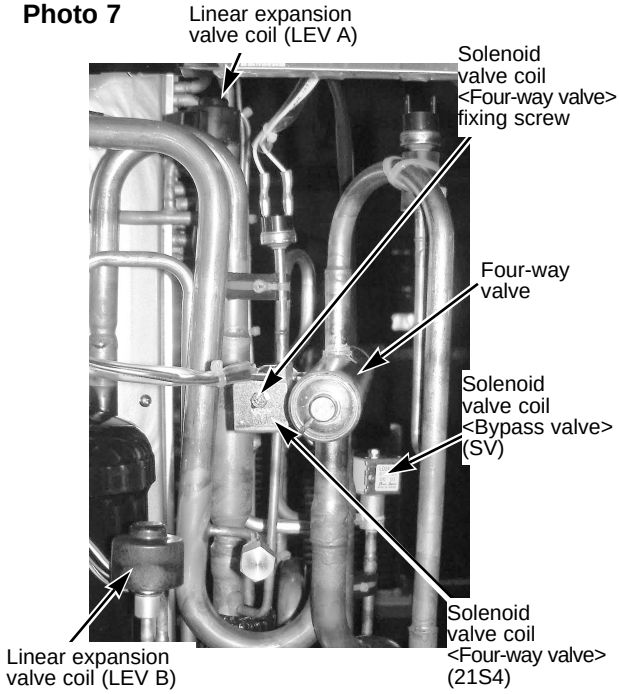
(3) Remove four-way valve solenoid coil fixing screw (M4 × 6).
(4) Remove the solenoid valve coil <Four-way valve> by sliding the coil toward you.
(5) Disconnect the connector 21S4 (green) on the controller circuit board in the electrical parts box.

[Removing the linear expansion valve coil]

(3) Remove the linear expansion valve coil by sliding the coil upward.
(4) Disconnect the connectors, LEV A (white) and LEV B (red), on the controller circuit board in the electrical parts box.

PHOTOS

Photo 7



8. Removing the four-way valve

(1) Remove the service panel. (See figure 1.)
(2) Remove the top panel. (See figure 1.)
(3) Remove 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed.
(4) Remove 4 right side panel fixing screw (5 × 10) in the rear of the unit and then remove the right side panel.
(5) Remove the solenoid valve coil <Four-way valve>. (See photo 7.)
(6) Collect the refrigerant.
(7) Remove the welded part of four-way valve.

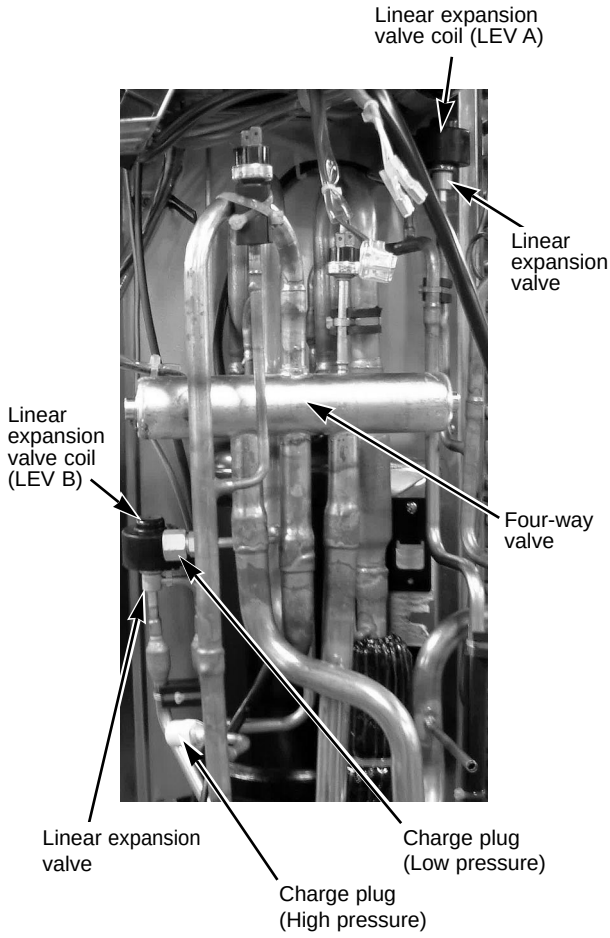
Note 1: Collect refrigerant without spreading it in the air.
Note 2: The welded part can be removed easily by removing the right side panel.
Note 3: When installing the four-way valve, cover it with a wet cloth to prevent it from heating (120°C or more), then braze the pipes so that the inside of pipes are not oxidized.

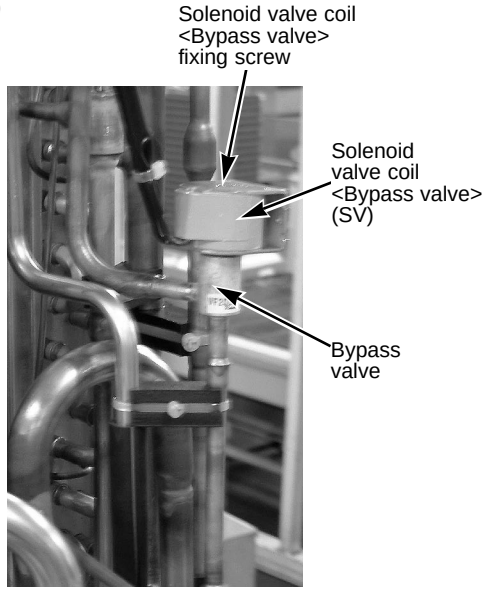
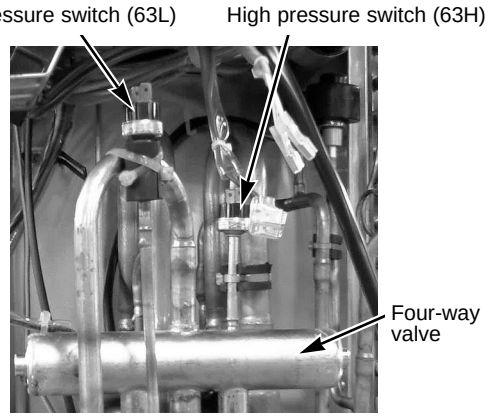
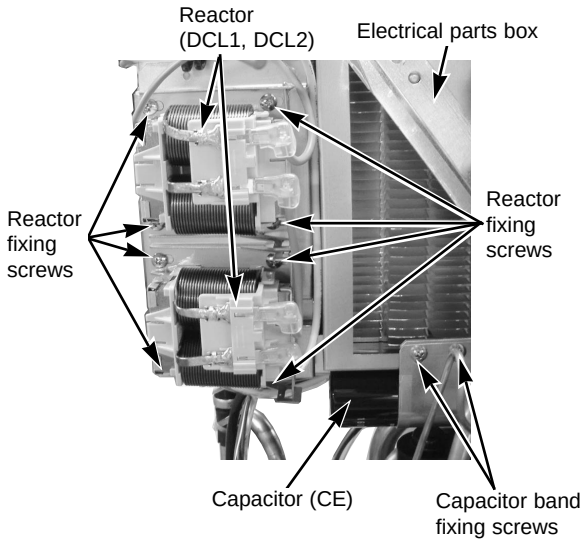
9. Removing linear expansion valve

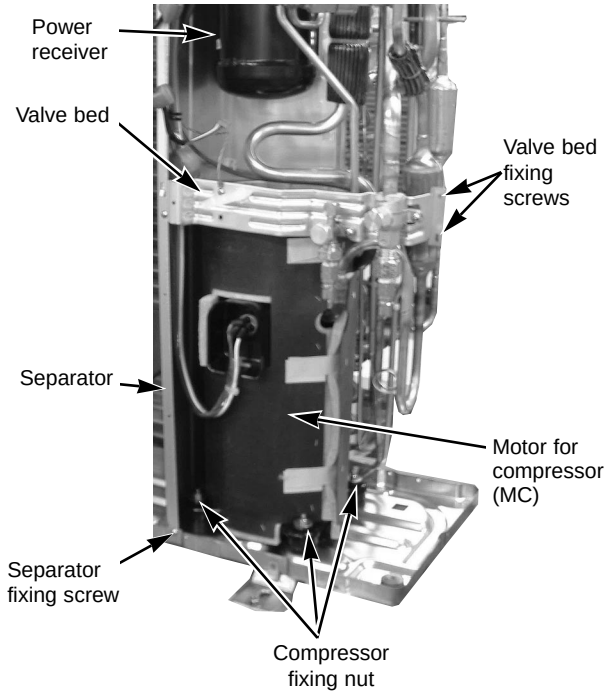
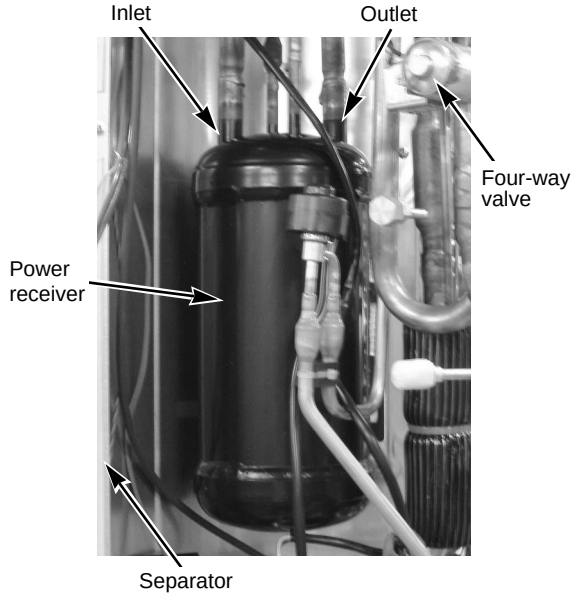
(1) Remove the service panel. (See figure 1.)
(2) Remove the top panel. (See figure 1.)
(3) Remove 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed.
(4) Remove 4 right side panel fixing screw (5 × 10) in the rear of the unit and then remove the right side panel.
(5) Remove the linear expansion valve. (See photo 7.)
(6) Collect the refrigerant.
(7) Remove the welded part of linear expansion valve.

Note 1: Collect refrigerant without spreading it in the air.
Note 2: The welded part can be removed easily by removing the right side panel.
Note 3: When installing the linear expansion valve, cover it with a wet cloth to prevent it from heating (120°C or more), then braze the pipes so that the inside of pip-es are not oxidized.

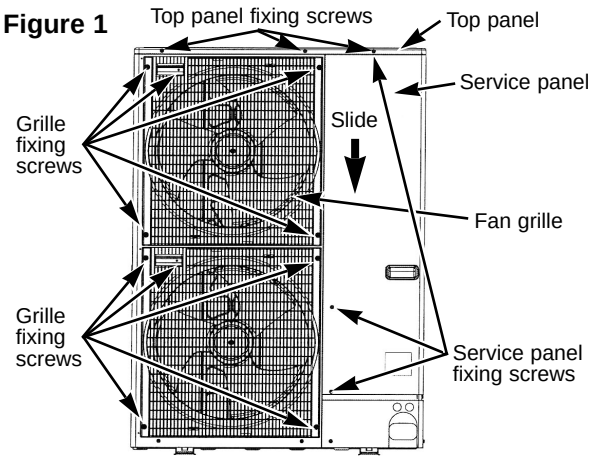
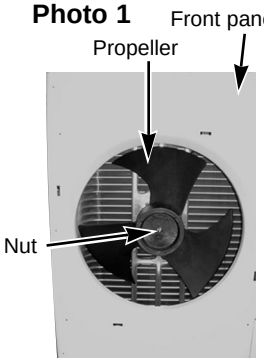
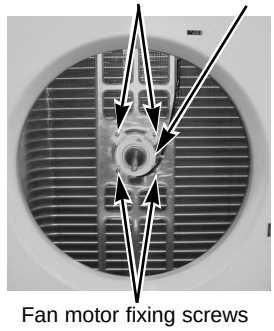
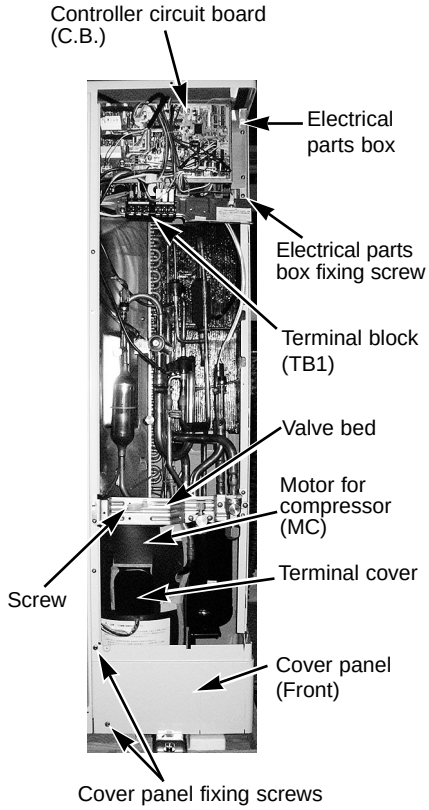
Photo 8

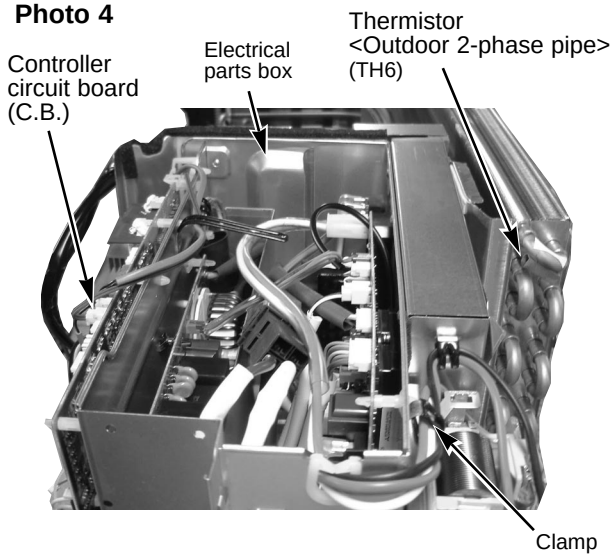
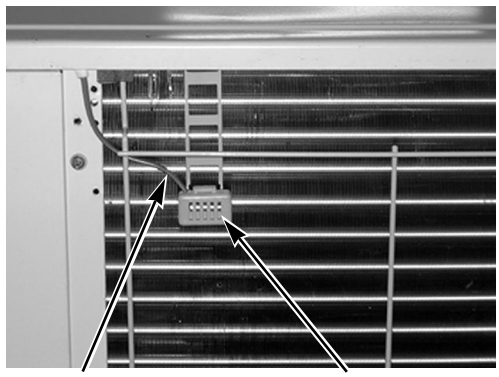
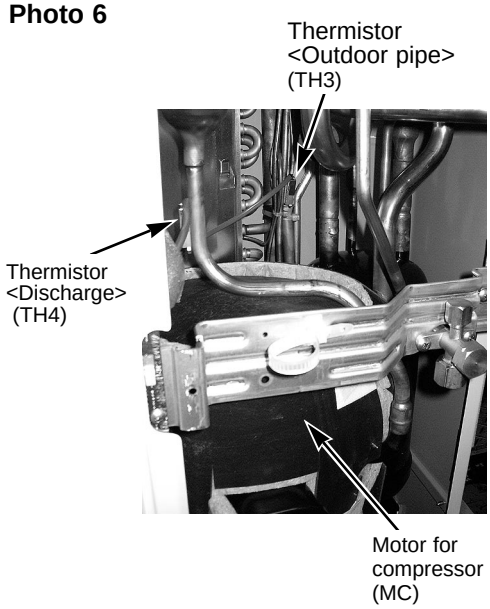


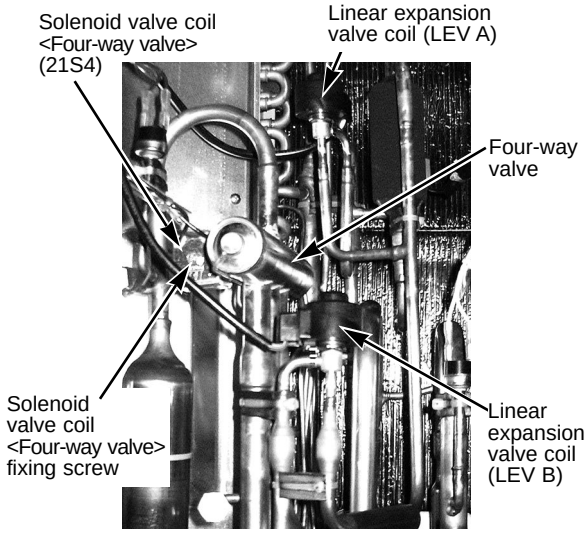
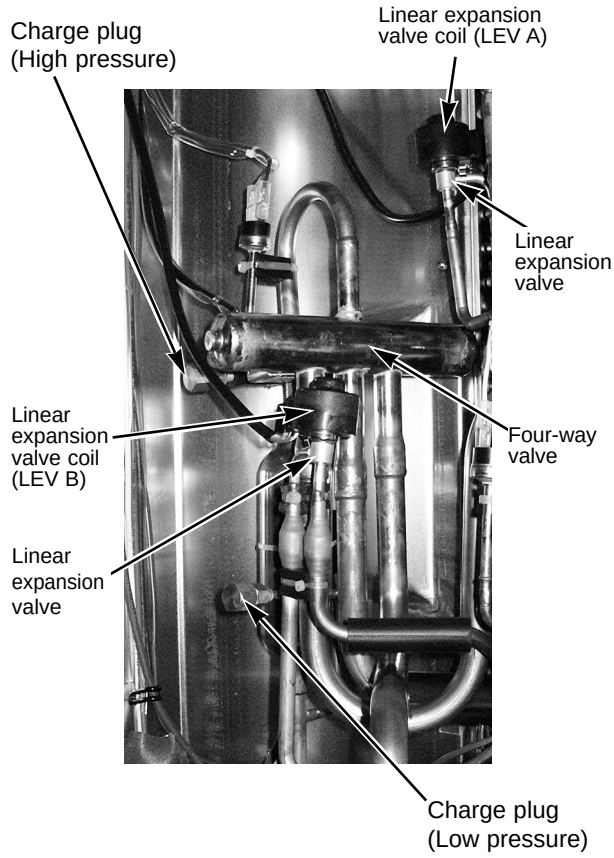
OPERATING PROCEDURE	PHOTOS
10. Removing solenoid valve coil <Bypass valve> (SV) and bypass valve (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove 3 right side panel fixing screws (5 × 10) in the rear of the unit and remove the right side panel. (4) Remove the bypass valve solenoid coil fixing screw (M4 × 6). (5) Remove the solenoid valve coil <Bypass valve> by sliding the coil upward. (6) Disconnect the connector SV2 (blue) on the controller circuit board in the electrical parts box. (7) Collect the refrigerant. (8) Remove the welded part of bypass valve. **Note 1: Collect refrigerant without spreading it in the air.** **Note 2: The welded part can be removed easily by removing the right side panel.**	**Photo 9** 
11. Removing the high pressure switch (63H) and low pressure switch (63L) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove 3 right side panel fixing screws (5 × 10) in the rear of the unit and remove the right side panel. (4) Pull out the lead wire of high pressure switch and low pressure switch. (5) Collect the refrigerant. (6) Remove the welded part of high pressure switch and low pressure switch. **Note 1: Collect refrigerant without spreading it in the air.** **Note 2: The welded part can be removed easily by removing the right side panel.** **Note 3: When installing the high pressure switch, cover it with a wet cloth to prevent it from heating (100°C or more), then braze the pipes so that the inside of pipes are not oxidized.**	**Photo 10** 
12. Removing the reactor (DCL1, DCL2) and capacitor (CE) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove the electrical parts box. (See photo 3.) <Removing the reactor> (4) Remove 8 reactor fixing screws (4 × 10) and remove the reactor. <Removing the capacitor> (4) Remove 2 capacitor band fixing screws (4 × 10) and remove the capacitor. ※ The reactor and capacitor is attached to the rear of the electrical parts box.	**Photo 11** 

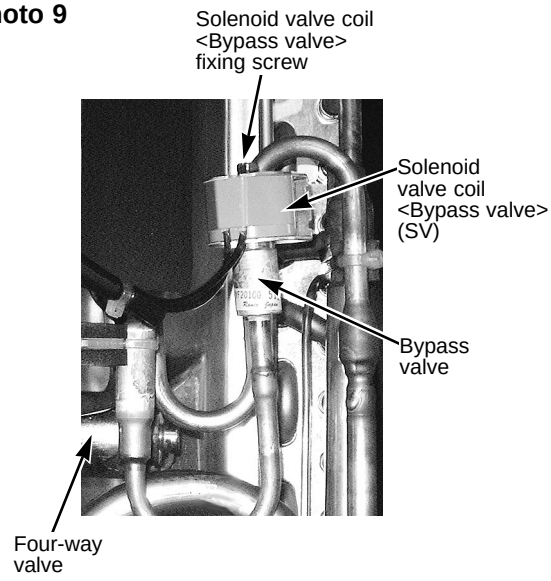
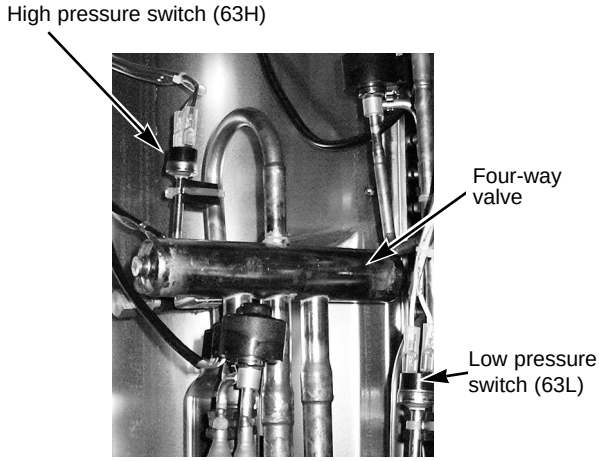
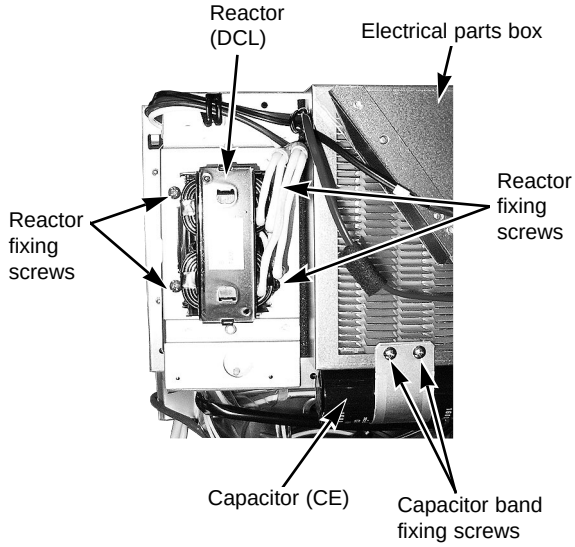
OPERATING PROCEDURE	PHOTOS
13. Removing the motor for compressor (MC) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove 2 front cover panel fixing screws (5 × 10) and remove the front cover panel. (See photo 3.) (4) Remove 2 back cover panel fixing screws (5 × 10) and remove the back cover panel. (5) Remove the electrical parts box. (See photo 3.) (6) Remove 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed. (7) Remove 3 right side panel fixing screw (5 × 10) in the rear of the unit and then remove the right side panel. (8) Remove 3 separator fixing screws (4 × 10) and remove the separator. (9) Collect the refrigerant. (10) Remove the 3 points of the motor for compressor fixing nut using a spanner or a monkey wrench. (11) Remove the welded pipe of motor for compressor inlet and outlet and then remove the compressor. **Note: Collect refrigerant without spreading it in the air.**	**Photo 12** 
14. Removing the power receiver (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove 2 front cover panel fixing screws (5 × 10) and remove the front cover panel. (See photo 3.) (4) Remove 2 back cover panel fixing screws (5 × 10) and remove the back cover panel. (5) Remove the electrical parts box. (See photo 3.) (6) Remove 3 right side panel fixing screw (5 × 10) in the rear of the unit and then remove the right side panel. (7) Collect the refrigerant. (8) Remove 4 welded pipes of power receiver inlet and outlet. (9) Remove 2 receiver leg fixing screws (4 × 10). **Note: Collect refrigerant without spreading it in the air.**	**Photo 13** 

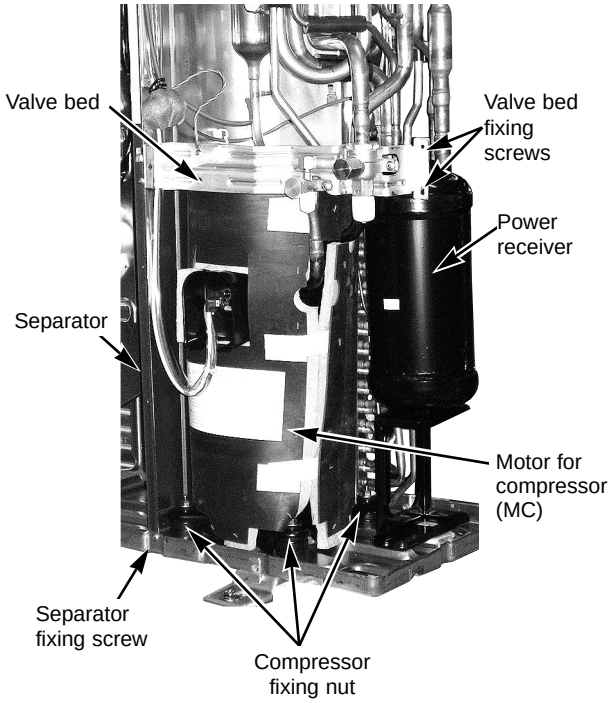
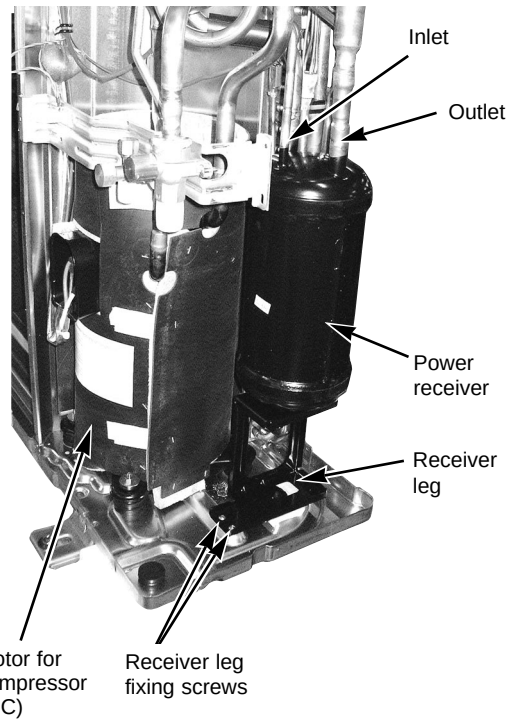
PUHZ-RP4VHA$_1$ PUHZ-RP5VHA$_1$ PUHZ-RP6VHA$_1$

OPERATING PROCEDURE	PHOTOS & ILLUSTRATION
1. Removing the service panel and top panel (1) Remove 3 service panel fixing screws (5 × 10) and slide the hook on the right downward to remove the service panel. (2) Remove screws (3 for front, 3 for rear/5 × 10) of the top panel and remove it.	**Figure 1** 
2. Removing the fan motor (MF1, MF2) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove 5 fan grille fixing screws (5 × 10) to detach the fan grille. (See figure 1.) (4) Remove a nut (for right handed screw of M6) to detach the propeller. (See photo 1.) (5) Disconnect the connectors, FAN11, FAN12, FAN21 and FAN 22 on controller circuit board in electrical parts box. (6) Remove 4 fan motor fixing screws (5 × 25) to detach the fan motor. (See photo 2.)	**Photo 1**  **Photo 2** 
3. Removing the electrical parts box (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Disconnect the indoor/outdoor connecting wire from terminal block. (4) Remove all the following connectors from controller circuit board; fan motor, linear expansion valve, thermistor <Outdoor pipe>, thermistor <Discharge>, thermistor <Outdoor 2-phase pipe>, thermistor <Outdoor>, high pressure switch, low pressure switch, solenoid valve coil <Four-way valve> and solenoid valve coil <Bypass valve>. Then remove a screw (4 × 8) from the valve bad to remove the lead wire. Pull out the disconnected wire from the electrical parts box. <Diagram symbol in the connector housing> • Fan motor (FAN11, FAN12, FAN21 and FAN22) • Linear expansion valve (LEV-A and LEV-B) • Thermistor <Outdoor pipe> (TH3) • Thermistor <Discharge> (TH4) • Thermistor <Outdoor 2-phase pipe, Outdoor> (TH6/7) • High pressure switch (63H) • Low pressure switch (63L) • Solenoid valve coil <Four-way valve> (21S4) • Solenoid valve coil <Bypass valve> (SV2) (5) Remove the terminal cover and disconnect the compressor lead wire. (6) Remove an electrical parts box fixing screw (4 × 10) and detach the electrical parts box by pulling it upward. The electrical parts box is fixed with 2 hooks on the left and 1 hook on the right.	**Photo 3** 

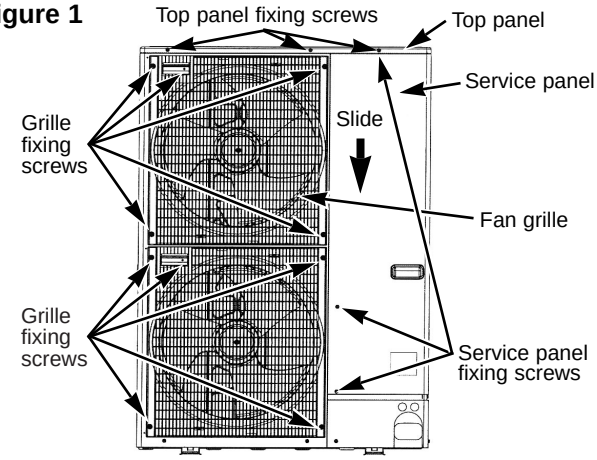
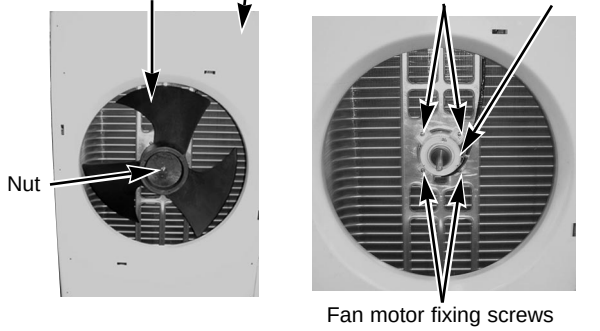
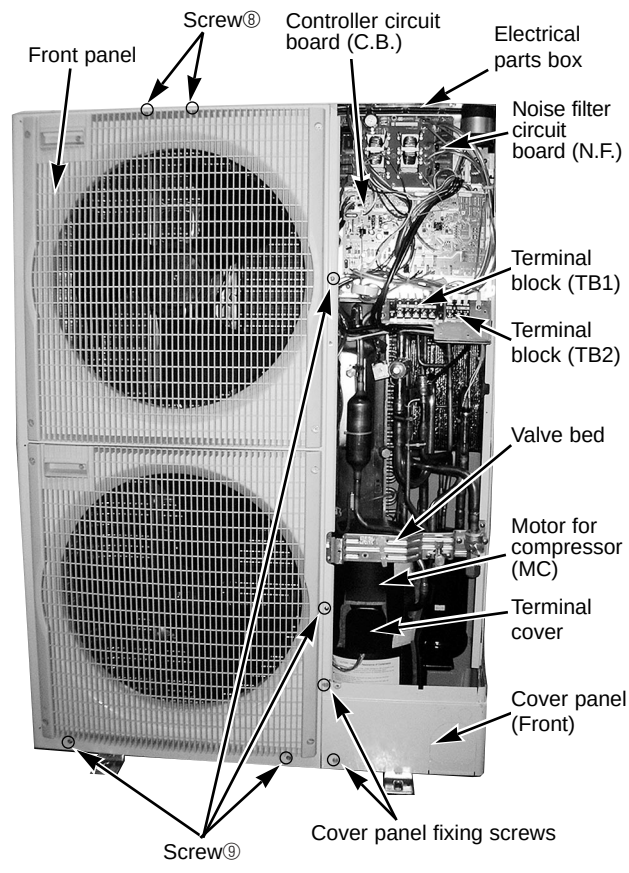
OPERATING PROCEDURE	PHOTOS
4. Removing the thermistor <Outdoor 2-phase pipe> (TH6) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Disconnect the connectors, TH6 and TH7 (red), on the controller circuit board in the electrical parts box. (4) Loosen the clamp for the lead wire in the rear of the electrical parts box. (5) Pull out the thermistor <Outdoor 2-phase pipe> (TH6) from the sensor holder. **Note: In case of replacing thermistor <Outdoor 2-phase pipe> (TH6), replace it together with thermistor <Outdoor> (TH7) since they are combined together. Refer to No.5 below to remove thermistor <Outdoor>.**	**Photo 4** 
5. Removing the thermistor <Outdoor> (TH7) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Disconnect the connector TH7 (red) on the controller circuit board in the electrical parts box. (4) Loosen the clamp for the lead wire in the rear of the electrical parts box. (See photo 4.) (5) Pull out the thermistor <Outdoor> (TH7) from the sensor holder. **Note: In case of replacing thermistor <Outdoor> (TH7), replace it together with thermistor <Outdoor 2-phase pipe> (TH6), since they are combined together. Refer to No.4 above to remove thermistor <Outdoor 2-phase pipe>.**	**Photo 5** 
6. Removing the thermistor <Outdoor pipe> (TH3) and thermistor <Discharge> (TH4) (1) Remove the service panel. (See figure 1.) (2) Disconnect the connectors, TH3 (white) and TH4 (white), on the controller circuit board in the electrical parts box. (3) Loosen the clamp for the lead wire in the rear of the electrical parts box. (See photo 4.) (4) Pull out the thermistor <Outdoor pipe> (TH3) and thermistor <Discharge> (TH4) from the sensor holder.	**Photo 6** 

OPERATING PROCEDURE	PHOTOS
7. Removing the solenoid valve coil <Four-way valve> (21S4), and linear expansion valve coil (LEV(A), LEV(B)) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) **[Removing the solenoid valve coil <Four-way valve>]** (3) Remove four-way valve solenoid coil fixing screw (M4 × 6). (4) Remove the solenoid valve coil <Four-way valve> by sliding the coil toward you. (5) Disconnect the connector 21S4 (green) on the controller circuit board in the electrical parts box. **[Removing the linear expansion valve coil]** (3) Remove the linear expansion valve coil by sliding the coil upward. (4) Disconnect the connectors, LEV A (white) and LEV B (red), on the controller circuit board in the electrical parts box.	**Photo 7** 
8. Removing the four-way valve (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed. (4) Remove 4 right side panel fixing screw (5 × 10) in the rear of the unit and then remove the right side panel. (5) Remove the solenoid valve coil <Four-way valve>. (See photo 7.) (6) Collect the refrigerant. (7) Remove the welded part of four-way valve. **Note 1: Collect refrigerant without spreading it in the air.** **Note 2: The welded part can be removed easily by removing the right side panel.** **Note 3: When installing the four-way valve, cover it with a wet cloth to prevent it from heating (120°C or more), then braze the pipes so that the inside of pipes are not oxidized.**	**Photo 8** 
9. Removing linear expansion valve (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed. (4) Remove 4 right side panel fixing screw (5 × 10) in the rear of the unit and then remove the right side panel. (5) Remove the linear expansion valve. (See photo 7.) (6) Collect the refrigerant. (7) Remove the welded part of linear expansion valve. **Note 1: Collect refrigerant without spreading it in the air.** **Note 2: The welded part can be removed easily by removing the right side panel.** **Note 3: When installing the linear expansion valve, cover it with a wet cloth to prevent it from heating (120°C or more), then braze the pipes so that the inside of pip-es are not oxidized.**	

OPERATING PROCEDURE	PHOTOS
10. Removing solenoid valve coil <Bypass valve> (SV) and bypass valve (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove 3 right side panel fixing screws (5 × 10) in the rear of the unit and remove the right side panel. (4) Remove the bypass valve solenoid coil fixing screw (M4 × 6). (5) Remove the solenoid valve coil <Bypass valve> by sliding the coil upward. (6) Disconnect the connector SV2 (blue) on the controller circuit board in the electrical parts box. (7) Collect the refrigerant. (8) Remove the welded part of bypass valve. **Note 1: Collect refrigerant without spreading it in the air.** **Note 2: The welded part can be removed easily by removing the right side panel.**	**Photo 9** 
11. Removing the high pressure switch (63H) and low pressure switch (63L) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove 3 right side panel fixing screws (5 × 10) in the rear of the unit and remove the right side panel. (4) Pull out the lead wire of high pressure switch and low pressure switch. (5) Collect the refrigerant. (6) Remove the welded part of high pressure switch and low pressure switch. **Note 1: Collect refrigerant without spreading it in the air.** **Note 2: The welded part can be removed easily by removing the right side panel.** **Note 3: When installing the high pressure switch, cover it with a wet cloth to prevent it from heating (100°C or more), then braze the pipes so that the inside of pipes are not oxidized.**	**Photo 10** 
12. Removing the reactor (DCL) and capacitor (CE) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove the electrical parts box. (See photo 3.) <Removing the reactor> (4) Remove 4 reactor fixing screws (4 × 10) and remove the reactor. <Removing the capacitor> (4) Remove 2 capacitor band fixing screws (4 × 10) and remove the capacitor. ※ The reactor and capacitor is attached to the rear of the electrical parts box.	**Photo 11** 

OPERATING PROCEDURE	PHOTOS
13. Removing the motor for compressor (MC) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove 2 front cover panel fixing screws (5 × 10) and remove the front cover panel. (See photo 3.) (4) Remove 2 back cover panel fixing screws (5 × 10) and remove the back cover panel. (5) Remove the electrical parts box. (See photo 3.) (6) Remove 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed. (7) Remove 3 right side panel fixing screw (5 × 10) in the rear of the unit and then remove the right side panel. (8) Remove 3 separator fixing screws (4 × 10) and remove the separator. (9) Collect the refrigerant. (10) Remove the 3 points of the motor for compressor fixing nut using a spanner or a monkey wrench. (11) Remove the welded pipe of motor for compressor inlet and outlet and then remove the compressor. **Note: Collect refrigerant without spreading it in the air.**	**Photo 12** 
14. Removing the power receiver (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove 2 front cover panel fixing screws (5 × 10) and remove the front cover panel. (See photo 3.) (4) Remove 2 back cover panel fixing screws (5 × 10) and remove the back cover panel. (5) Remove the electrical parts box. (See photo 3.) (6) Remove 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed. (7) Remove 3 right side panel fixing screw (5 × 10) in the rear of the unit and then remove the right side panel. (8) Collect the refrigerant. (9) Remove 4 welded pipes of power receiver inlet and outlet. (10) Remove 2 receiver leg fixing screws (4 × 10). **Note: Collect refrigerant without spreading it in the air.**	**Photo 13** 

PUHZ-RP4YHA PUHZ-RP5YHA PUHZ-RP6YHA

OPERATING PROCEDURE	PHOTOS & ILLUSTRATION
1. Removing the service panel and top panel (1) Remove 3 service panel fixing screws (5 × 10) and slide the hook on the right downward to remove the service panel. (2) Remove screws (3 for front, 3 for rear/5 × 10) of the top panel and remove it.	**Figure 1** 
2. Removing the fan motor (MF1, MF2) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove 5 fan grille fixing screws (5 × 10) to detach the fan grille. (See figure 1.) (4) Remove a nut (for right handed screw of M6) to detach the propeller. (See photo 1.) (5) Disconnect the connectors, CNF1 and CNF2 on controller circuit board in electrical parts box. (6) Remove 4 fan motor fixing screws (5 × 25) to detach the fan motor. (See photo 2.)	**Photo 1** **Photo 2** 
3. Removing the electrical parts box (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Disconnect the indoor/outdoor connecting wire from terminal block. (4) Disconnect the connector CNF1, CNF2, LEV-A and LEV-B on the controller circuit board. <Symbols on the board> • CNF1, CNF2 : Fan motor • LEV-A, LEV-B : Linear expansion valve (5) Disconnect the pipe-side connections of the following parts. • Thermistor <Outdoor pipe>(TH3) • Thermistor <Discharge>(TH4) • Thermistor <Outdoor 2-phase pipe>(TH6) • Thermistor <Outdoor>(TH7) • High pressure switch (63H) • Low pressure switch (63L) • Solenoid valve coil <Four-Way Valve>(21S4) • Solenoid valve coil <Bypass Valve>(SV)	**Photo 3** 

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From the previous page.

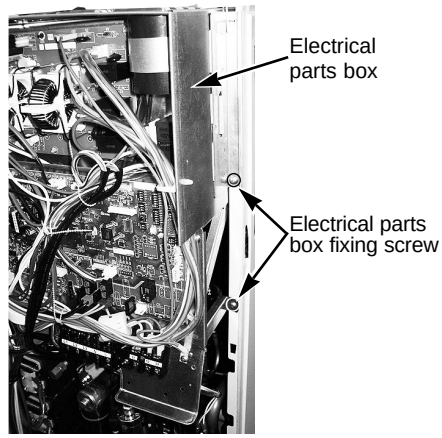
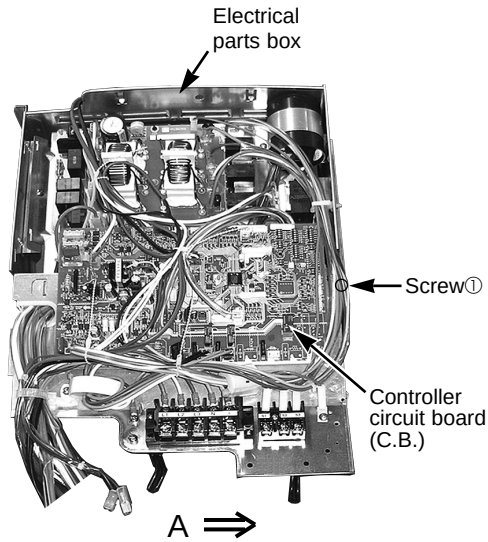
OPERATING PROCEDURE	PHOTOS & ILLUSTRATION
(5) Remove the terminal cover and disconnect the compressor lead wire. (6) Remove 2 electrical parts box fixing screws (4 × 10) and detach the electrical parts box by pulling it upward. The electrical parts box is fixed with 2 hooks on the left and 1 hook on the right.	**Photo 4** 
4. Disassembling the electrical parts box (1) Disconnect all the connectors on the controller circuit board. (2) Remove the 3 screws, screw ①, ② and ③, that fix the plate equipped with the outdoor controller circuit board, and the electrical parts box, screw ① from the front and the screw ② and ③ from the bottom of the electrical parts box. (See photo 5 and 6.) (3) Slide the plate in the direction of the arrow A and remove it. (See photo 5.) (4) Remove the lead wires from the clamp on the bottom of the electrical parts box. (See photo 7.) (5) Remove the 3 screws, screw ④ and ⑤, that fix the bottom side of the electrical parts box and remove the bottom side plate by sliding in the direction of the arrow B. (See photo 7 and 8.) (6) Remove the 2 screws, screw ⑥ and ⑦, that fix the plate equipped with the noise filter circuit board and converter circuit board. (See photo 9.) **Note: When reassembling the electrical parts box, make sure the wirings are correct.**	**Photo 5** 

Photo 6

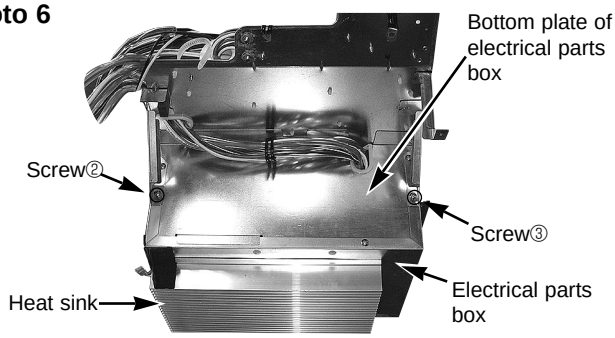


Photo 7

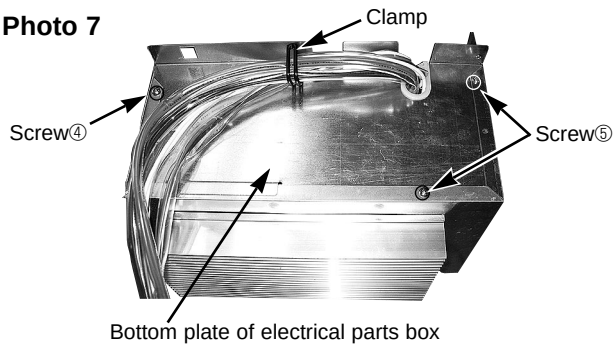


Photo 8

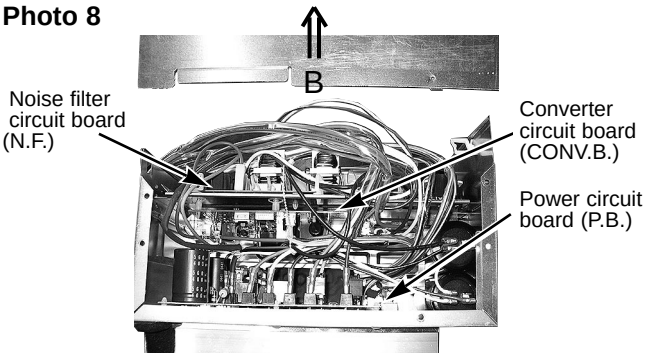
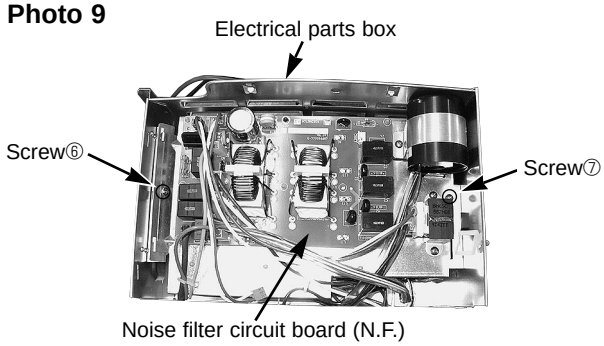
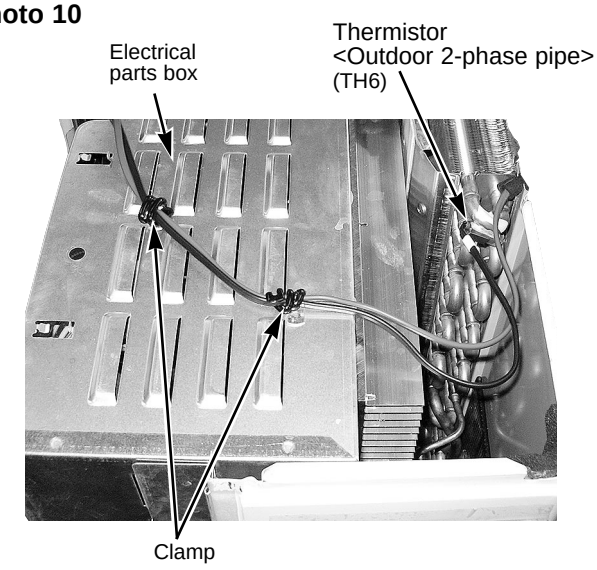
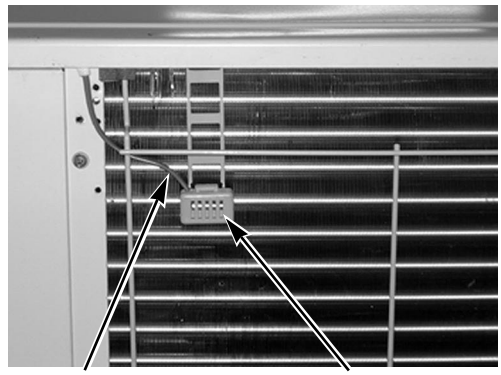
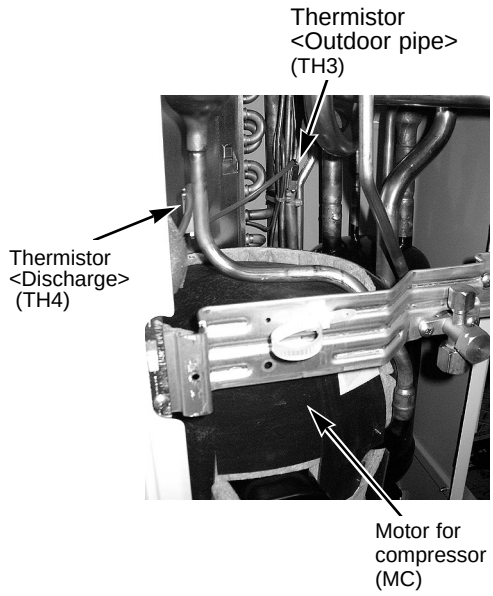
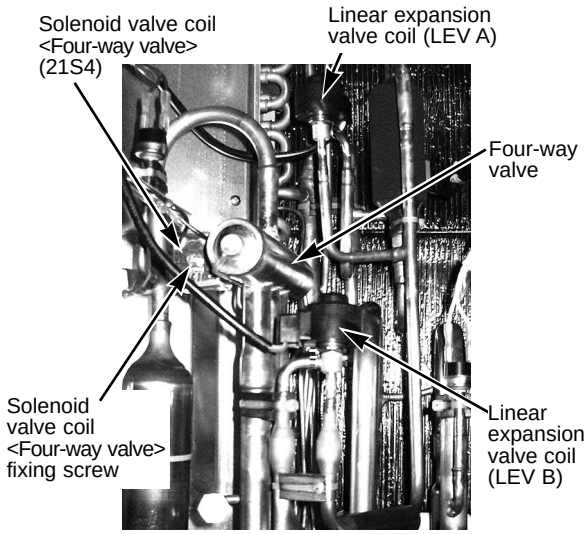
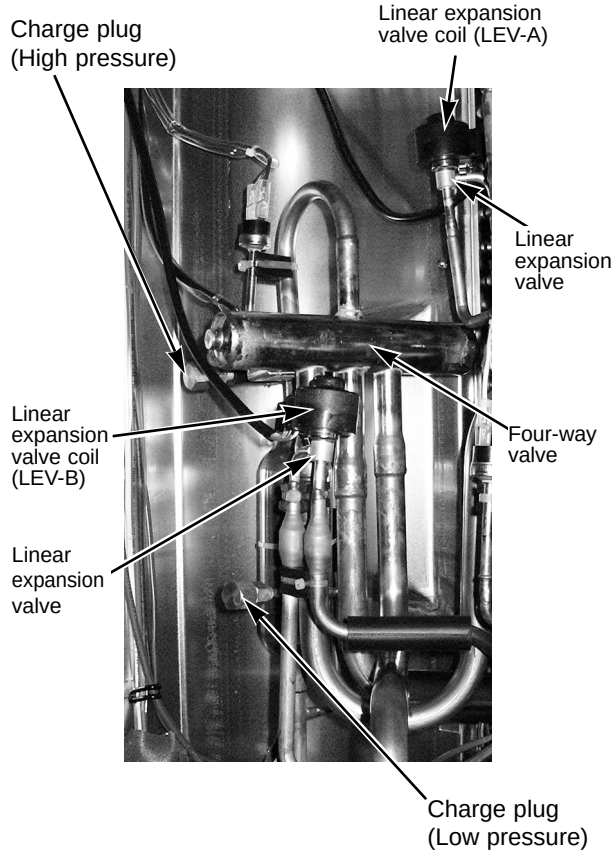
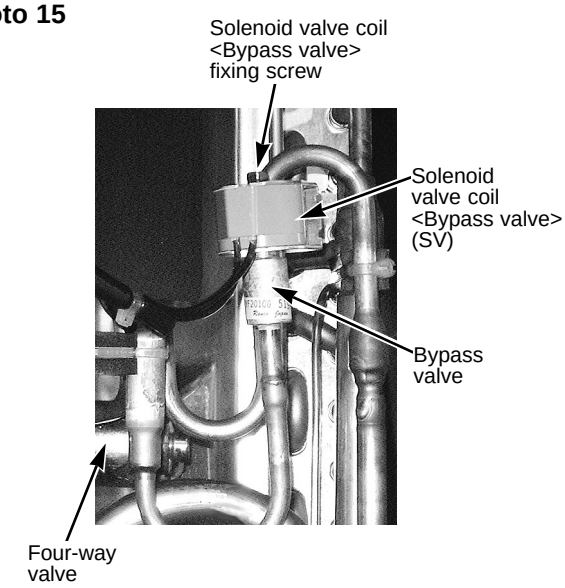
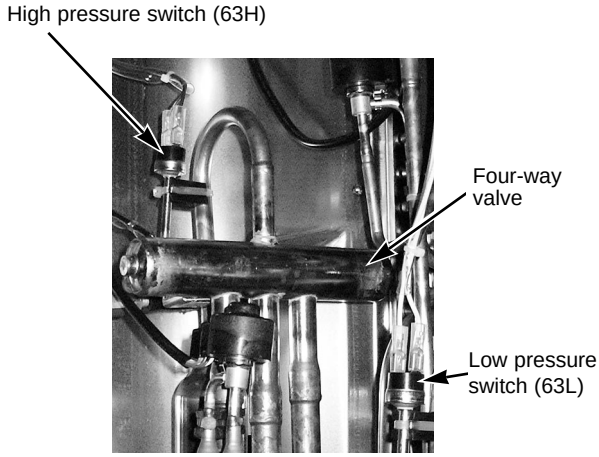


Photo 9



OPERATING PROCEDURE	PHOTOS
5. Removing the thermistor <Outdoor 2-phase pipe> (TH6) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Disconnect the connectors, TH6 and TH7 (red), on the controller circuit board in the electrical parts box. (4) Loosen the 2 wire clamps on top of the electrical parts box. (5) Pull out the thermistor <Outdoor 2-phase pipe> (TH6) from the sensor holder. **Note: In case of replacing thermistor <Outdoor 2-phase pipe> (TH6), replace it together with thermistor <Outdoor> (TH7) since they are combined together. Refer to No.5 below to remove thermistor <Outdoor>.**	**Photo 10** 
6. Removing the thermistor <Outdoor> (TH7) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Disconnect the connector TH7 (red) on the controller circuit board in the electrical parts box. (4) Loosen the 2 wire clamps on top of the electrical parts box. (See photo 10.) (5) Pull out the thermistor <Outdoor> (TH7) from the sensor holder. **Note: In case of replacing thermistor <Outdoor> (TH7), replace it together with thermistor <Outdoor 2-phase pipe> (TH6), since they are combined together. Refer to No.4 above to remove thermistor <Outdoor 2-phase pipe>.**	**Photo 11** 
7. Removing the thermistor <Outdoor pipe> (TH3) and thermistor <Discharge> (TH4) (1) Remove the service panel. (See figure 1.) (2) Disconnect the connectors, TH3 (white) and TH4 (white), on the controller circuit board in the electrical parts box. (3) Loosen the clamp for the lead wire in the rear of the electrical parts box. (See photo 4.) (4) Pull out the thermistor <Outdoor pipe> (TH3) and thermistor <Discharge> (TH4) from the sensor holder.	**Photo 12** 

OPERATING PROCEDURE	PHOTOS
8. Removing the solenoid valve coil <Four-way valve> (21S4), and linear expansion valve coil (LEV(A), LEV(B)) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) **[Removing the solenoid valve coil <Four-way valve>]** (3) Remove four-way valve solenoid coil fixing screw (M4 × 6). (4) Remove the solenoid valve coil <Four-way valve> by sliding the coil toward you. (5) Disconnect the connector 21S4 (green) on the controller circuit board in the electrical parts box. **[Removing the linear expansion valve coil]** (3) Remove the linear expansion valve coil by sliding the coil upward. (4) Disconnect the connectors, LEV A (white) and LEV B (red), on the controller circuit board in the electrical parts box.	**Photo 13** 
9. Removing the four-way valve (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed. (4) Remove 4 right side panel fixing screw (5 × 10) in the rear of the unit and then remove the right side panel. (5) Remove the solenoid valve coil <Four-way valve>. (See photo 13.) (6) Collect the refrigerant. (7) Remove the welded part of four-way valve. **Note 1: Collect refrigerant without spreading it in the air.** **Note 2: The welded part can be removed easily by removing the right side panel.** **Note 3: When installing the four-way valve, cover it with a wet cloth to prevent it from heating (120°C or more), then braze the pipes so that the inside of pipes are not oxidized.**	**Photo 14** 
10. Removing linear expansion valve (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed. (4) Remove 4 right side panel fixing screw (5 × 10) in the rear of the unit and then remove the right side panel. (5) Remove the linear expansion valve. (See photo 13.) (6) Collect the refrigerant. (7) Remove the welded part of linear expansion valve. **Note 1: Collect refrigerant without spreading it in the air.** **Note 2: The welded part can be removed easily by removing the right side panel.** **Note 3: When installing the linear expansion valve, cover it with a wet cloth to prevent it from heating (120°C or more), then braze the pipes so that the inside of pip-es are not oxidized.**	

OPERATING PROCEDURE	PHOTOS
11. Removing solenoid valve coil <Bypass valve> (SV) and bypass valve (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove 3 right side panel fixing screws (5 × 10) in the rear of the unit and remove the right side panel. (4) Remove the bypass valve solenoid coil fixing screw (M4 × 6). (5) Remove the solenoid valve coil <Bypass valve> by sliding the coil upward. (6) Disconnect the connector SV2 (blue) on the controller circuit board in the electrical parts box. (7) Collect the refrigerant. (8) Remove the welded part of bypass valve. **Note 1: Collect refrigerant without spreading it in the air.** **Note 2: The welded part can be removed easily by removing the right side panel.**	**Photo 15** 
12. Removing the high pressure switch (63H) and low pressure switch (63L) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove 3 right side panel fixing screws (5 × 10) in the rear of the unit and remove the right side panel. (4) Pull out the lead wire of high pressure switch and low pressure switch. (5) Collect the refrigerant. (6) Remove the welded part of high pressure switch and low pressure switch. **Note 1: Collect refrigerant without spreading it in the air.** **Note 2: The welded part can be removed easily by removing the right side panel.** **Note 3: When installing the high pressure switch, cover it with a wet cloth to prevent it from heating (100°C or more), then braze the pipes so that the inside of pipes are not oxidized.**	**Photo 16** 

OPERATING PROCEDURE

13. Removing the reactors (ACL1, ACL2, ACL3)

(1) Remove the service panel. (See figure 1.)
(2) Remove the top panel. (See figure 1.)
(3) Remove the 6 screws, screw ⑧ and ⑨ (5 X 10), that fix the front panel and remove the front panel. (See photo 3.)
(4) Remove the 2 screws, screw ⑩ and ⑪ (both 4 X 10), that fix the separator, screw ⑩ from the valve bed and screw ⑪ from the bottom of the separator, and tilt the separator to the side of the fan motor slightly. (See photo 17.)
(5) Disconnect the lead wires from the reactor and remove the 4 screws, screw ⑫, that fix the reactor to remove the reactor. (See photo 18 and 19.)

Note 1: The reactor is very heavy (4kg)! Be careful when handling it.
Note 2: The reactor box is also removable.

PHOTOS

Photo 17

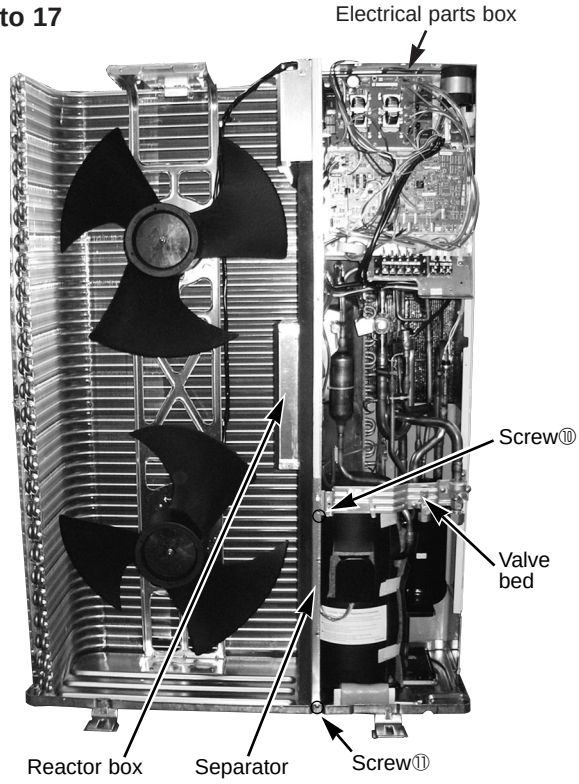


Photo 18

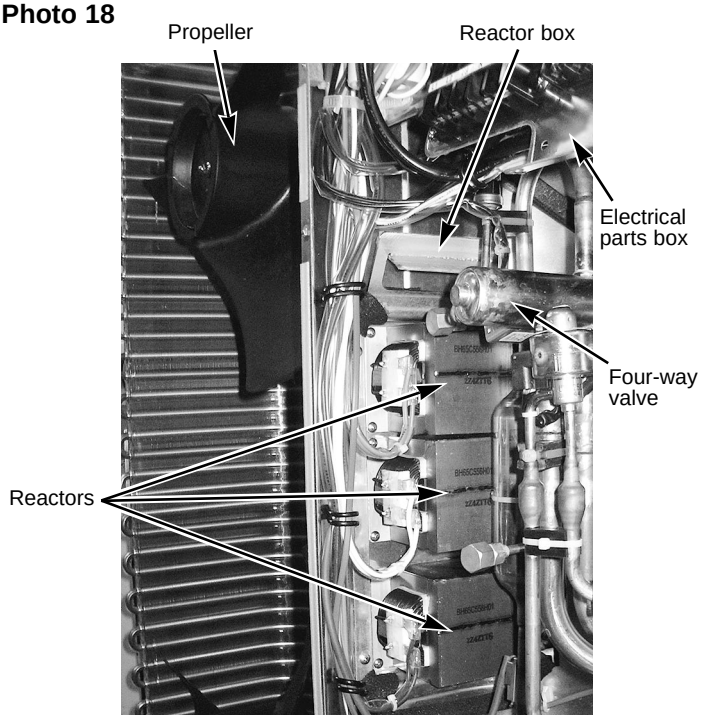
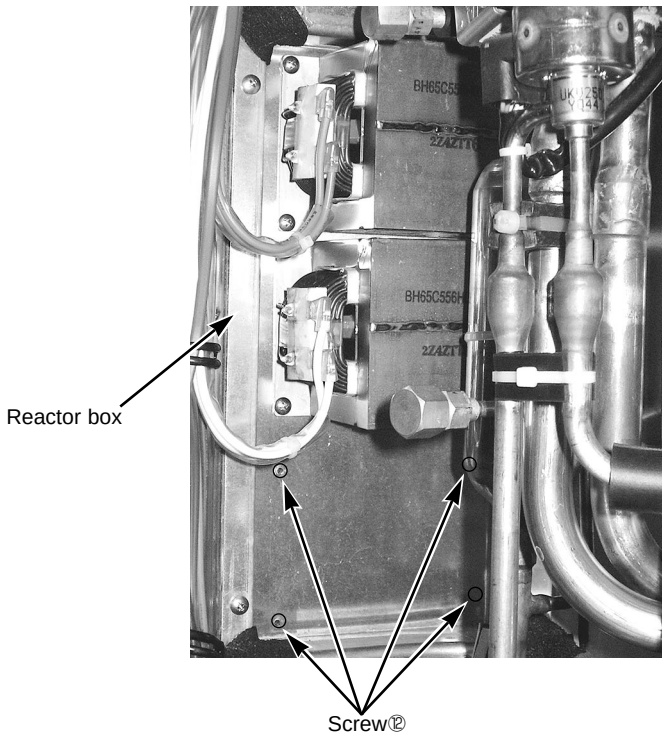
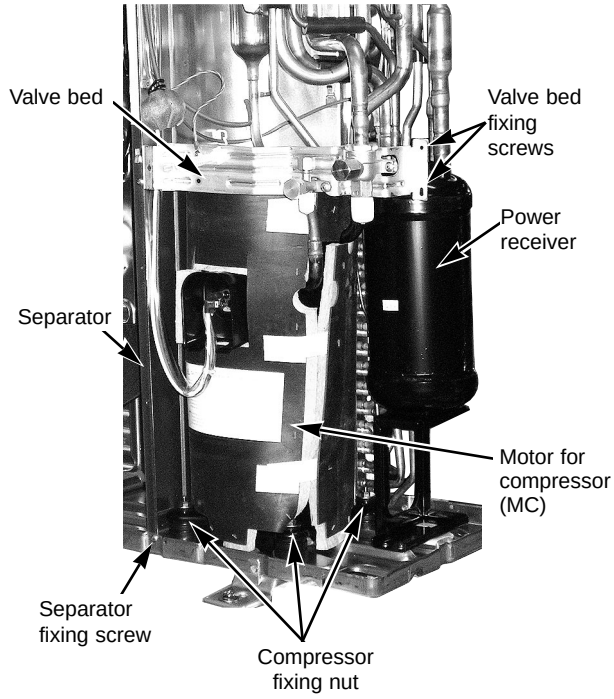
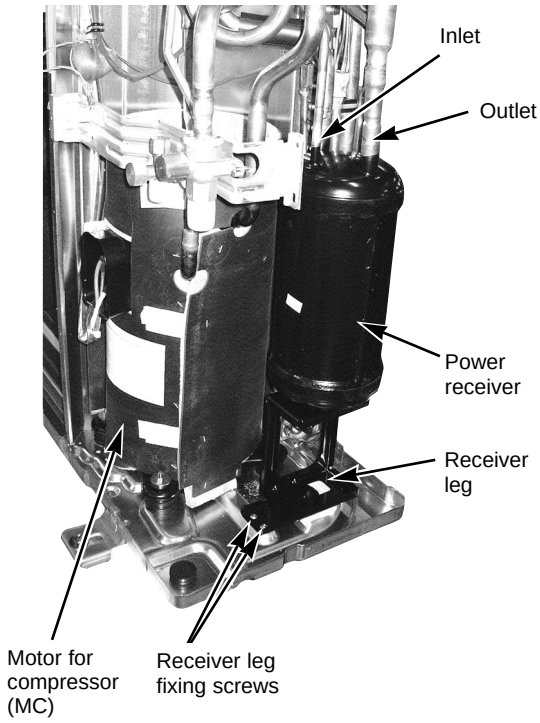


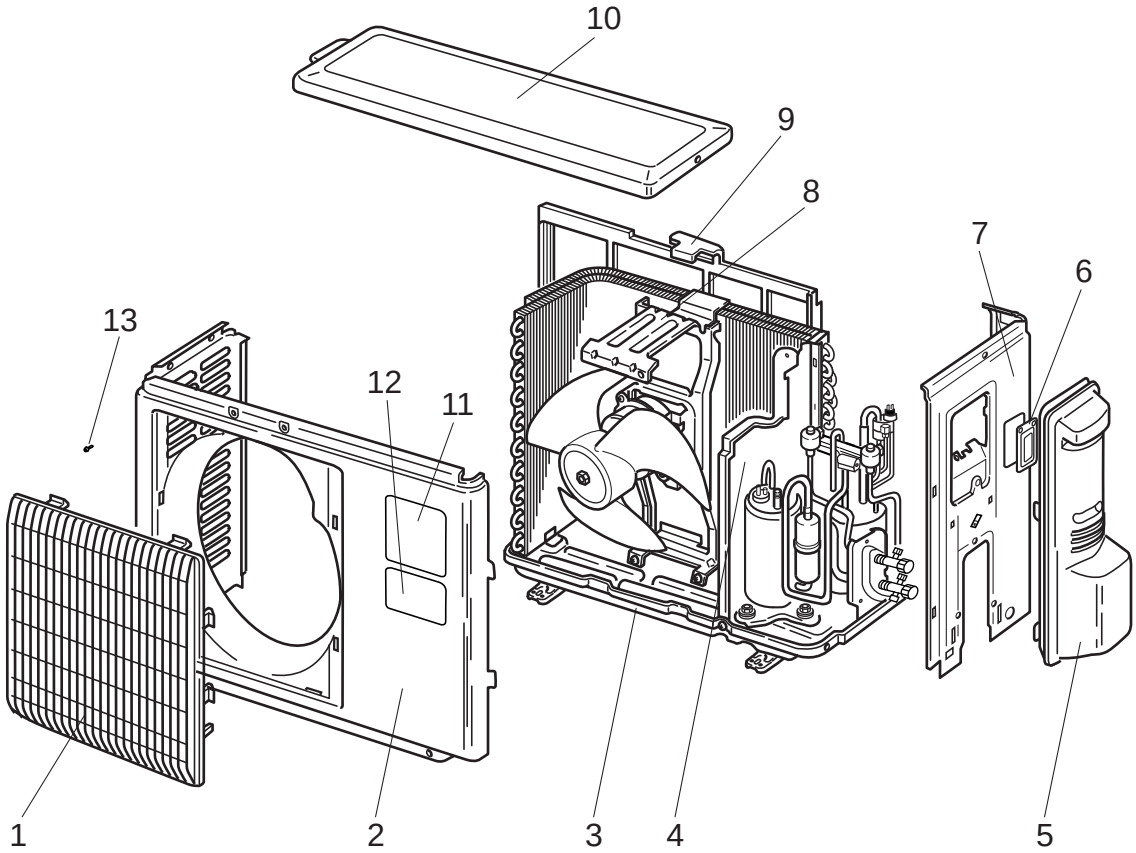
Photo 19



OPERATING PROCEDURE	PHOTOS
14. Removing the motor for compressor (MC) (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove 2 front cover panel fixing screws (5 × 10) and remove the front cover panel. (See photo 3.) (4) Remove 2 back cover panel fixing screws (5 × 10) and remove the back cover panel. (5) Remove the electrical parts box. (See photo 3.) (6) Remove 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed. (7) Remove 3 right side panel fixing screw (5 × 10) in the rear of the unit and then remove the right side panel. (8) Remove 3 separator fixing screws (4 × 10) and remove the separator. (9) Collect the refrigerant. (10) Remove the 3 points of the motor for compressor fixing nut using a spanner or a monkey wrench. (11) Remove the welded pipe of motor for compressor inlet and outlet and then remove the compressor. **Note: Collect refrigerant without spreading it in the air.**	**Photo 20** 
15. Removing the power receiver (1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove 2 front cover panel fixing screws (5 × 10) and remove the front cover panel. (See photo 3.) (4) Remove 2 back cover panel fixing screws (5 × 10) and remove the back cover panel. (5) Remove the electrical parts box. (See photo 3.) (6) Remove 3 valve bed fixing screws (4 × 10) and 4 ball valve and stop valve fixing screws (5 × 16) and then remove the valve bed. (7) Remove 3 right side panel fixing screw (5 × 10) in the rear of the unit and then remove the right side panel. (8) Collect the refrigerant. (9) Remove 4 welded pipes of power receiver inlet and outlet. (10) Remove 2 receiver leg fixing screws (4 × 10). **Note: Collect refrigerant without spreading it in the air.**	**Photo 21** 

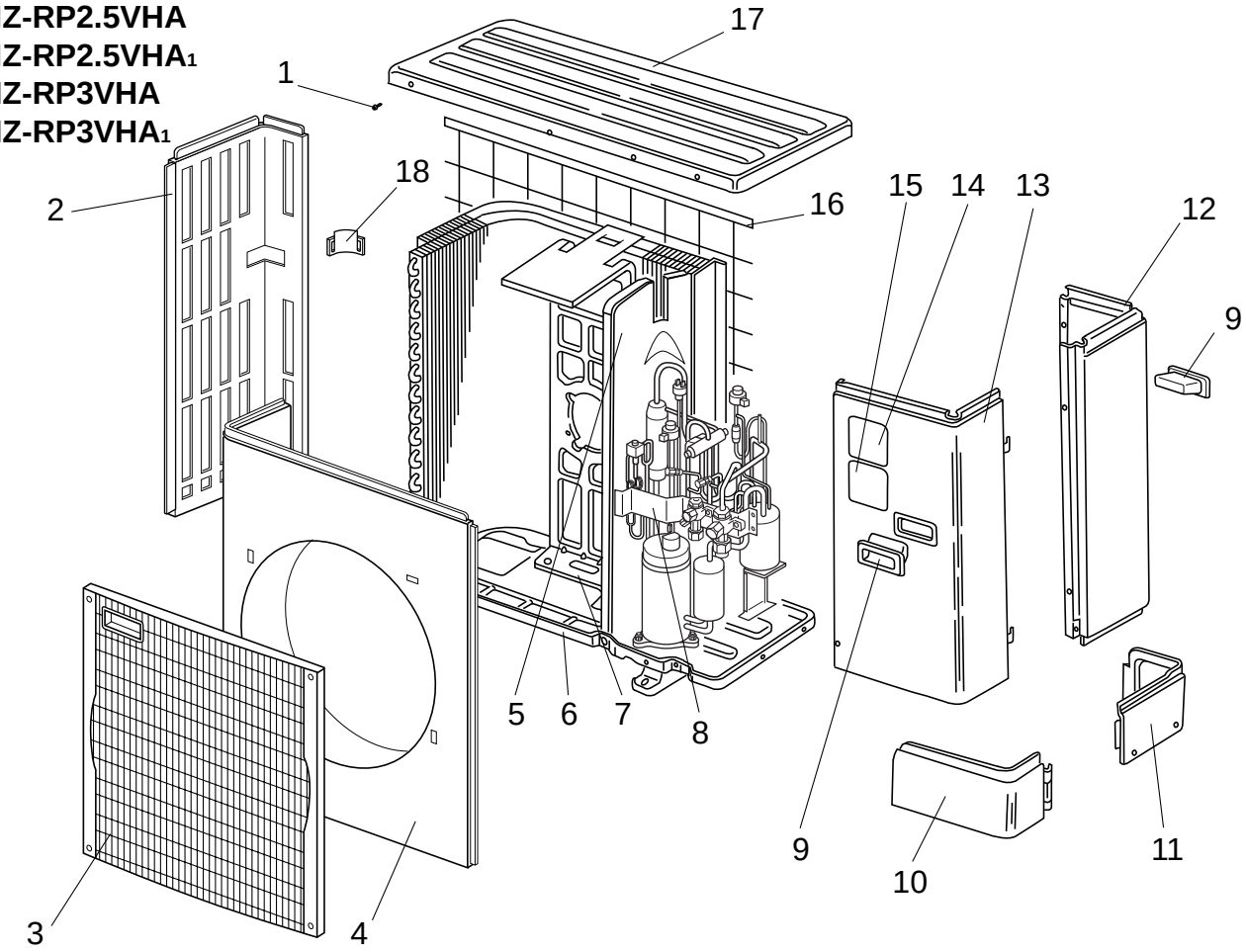
13 PARTS LIST

STRUCTURAL PARTS
PUHZ-RP1.6VHA
PUHZ-RP2VHA



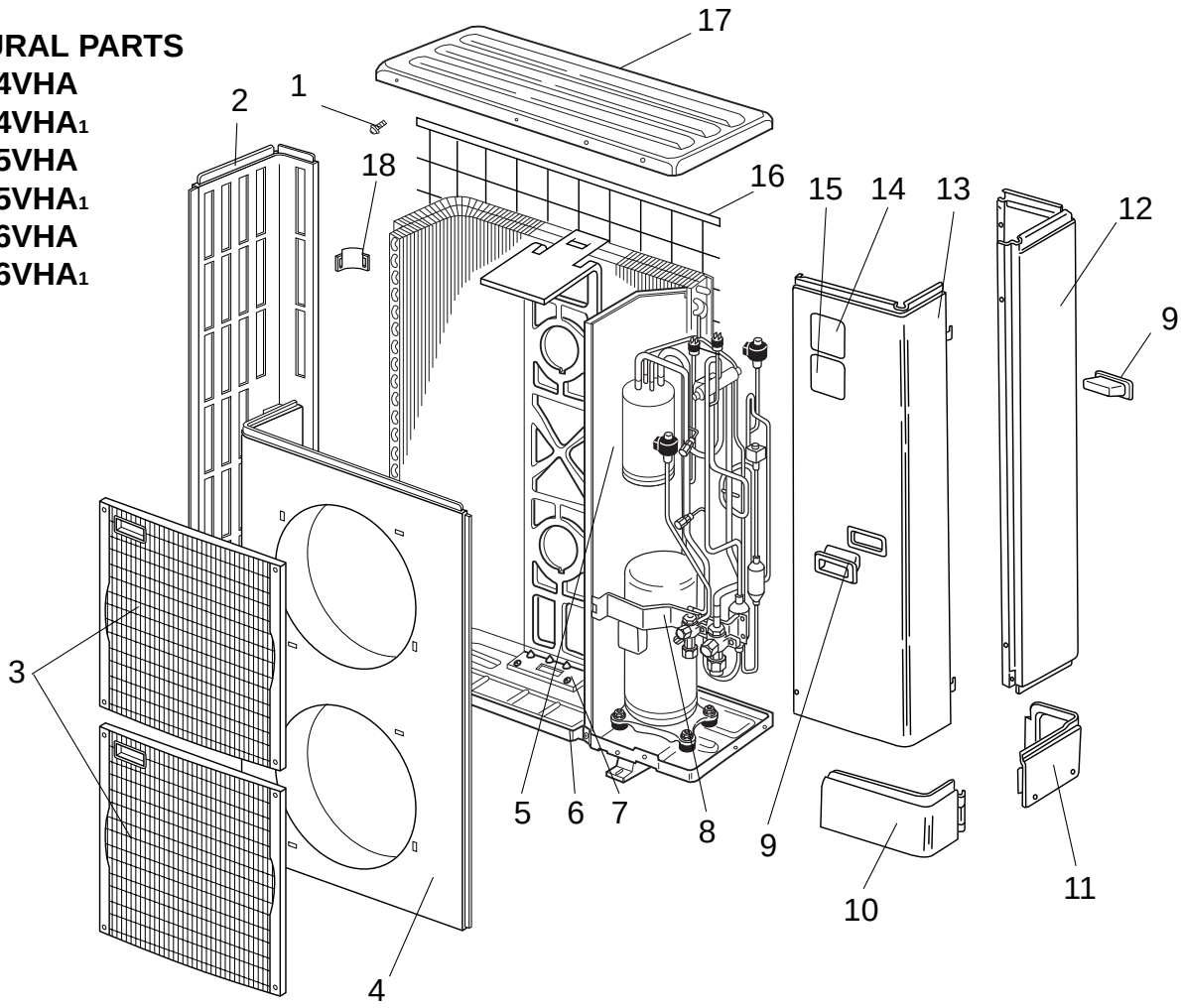
No.	Part No.	Part Name	Specification	Q'ty/set	Remarks (Drawing No.)	Wining Diagram Symbol	Recommended Q'ty	Price	
				PUHZ-RP1.6VHA PUHZ-RP2VHA				Unit	Amount
1	R01 E10 691	GRILLE		1					
2	R01 E02 668	FRONT PANEL		1					
3	R01 E15 686	BASE ASSY		1					
4	—	SEPARATOR		1	(SU00B229G35)				
5	R01 E02 667	SERVICE PANEL		1					
6	R01 E00 518	SERVICE PANEL		1					
7	R01 E02 682	BACK PANEL		1					
8	R01 E09 130	MOTOR SUPPORT		1					
9	R01 E01 684	CONDENSER NET		2					
10	T7W E01 641	TOP PANEL		1					
11	—	LABEL (MITSUBISHI)		1	(DG79R130H01)				
12	—	LABEL (INVERTER)		1	(BK79C208G01)				
13	—	F.ST SCREW	(4×10)	12	(Z504K189H37)				

STRUCTURAL PARTS
PUHZ-RP2.5VHA
PUHZ-RP2.5VHA$_1$
PUHZ-RP3VHA
PUHZ-RP3VHA$_1$



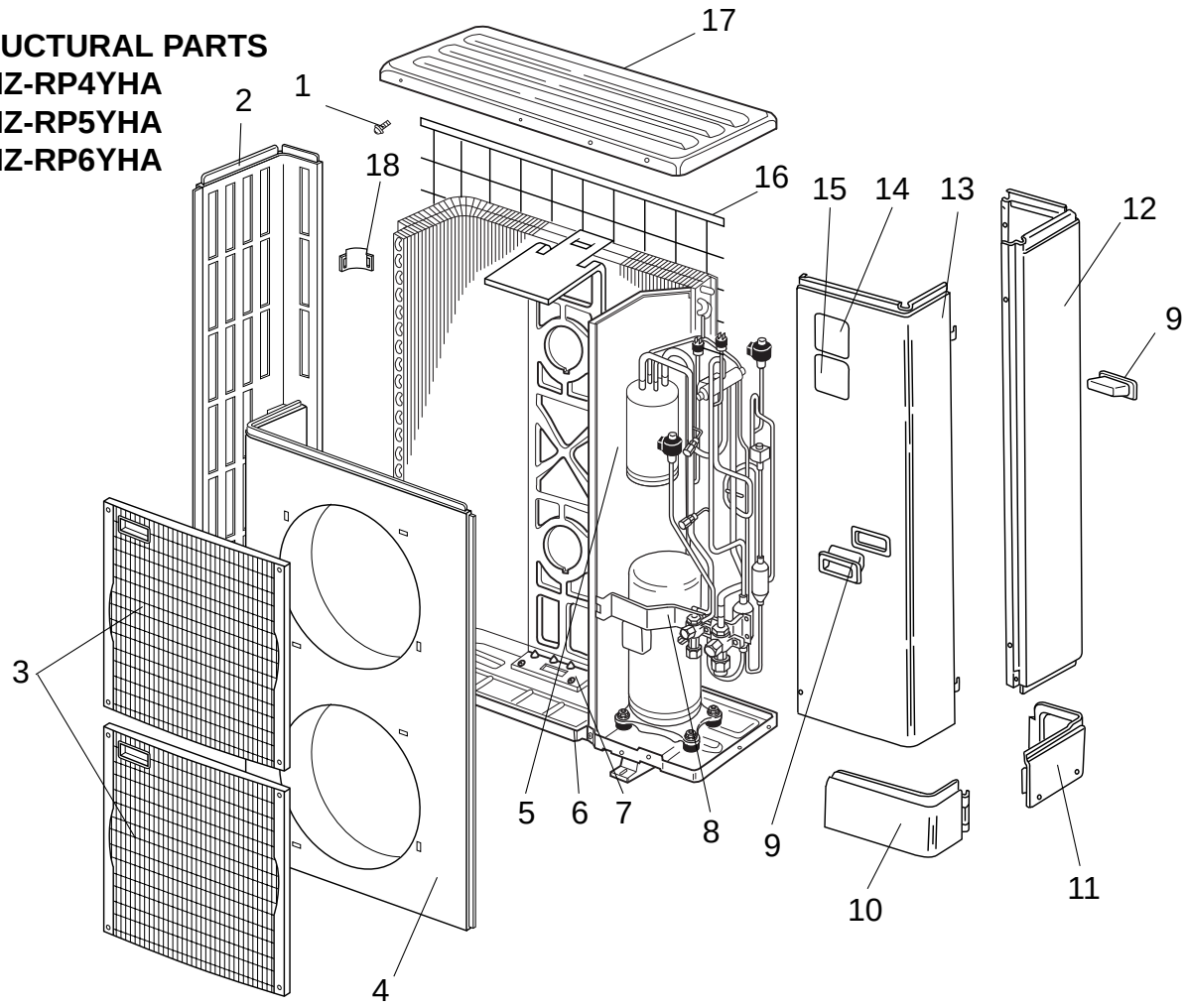
No.	Part No.	Part Name	Specification	Q'ty/set PUHZ-RP 2.5, 3 VHA, VHA$_1$	Remarks (Drawing No.)	Wining Diagram Symbol	Recommended Q'ty	Price Unit	Price Amount
1	—	F.ST SCREW	(5×10)	31	(DG12F536H10)				
2	R01 E01 662	SIDE PANEL (L)		1					
3	T7W E02 691	FAN GRILLE		1					
4	T7W E01 667	FRONT PANEL		1					
5	—	SEPARATOR		1	(BK00C143G25)				
6	R01 E13 686	BASE ASSY		1					
7	R01 E06 130	MOTOR SUPPORT		1					
8	—	VALVE BED ASSY		1	(BK00C142G07)				
9	R01 30L 655	HANDLE		2					
10	R01 E02 658	COVER PANEL (FRONT)		1					
11	R01 E01 658	COVER PANEL (REAR)		1					
12	R01 E03 661	SIDE PANEL (R)		1					
13	T7W E02 668	SERVICE PANEL		1					
14	—	LABEL (MITSUBISHI)		1	(DG79R130H01)				
15	—	LABEL (INVERTER)		1	(BK79C208G02)				
16	R01 E00 698	REAR GUARD		1					
17	R01 E04 641	TOP PANEL		1					
18	R01 E00 655	HANDLE		1					

STRUCTURAL PARTS
PUHZ-RP4VHA
PUHZ-RP4VHA$_1$
PUHZ-RP5VHA
PUHZ-RP5VHA$_1$
PUHZ-RP6VHA
PUHZ-RP6VHA$_1$



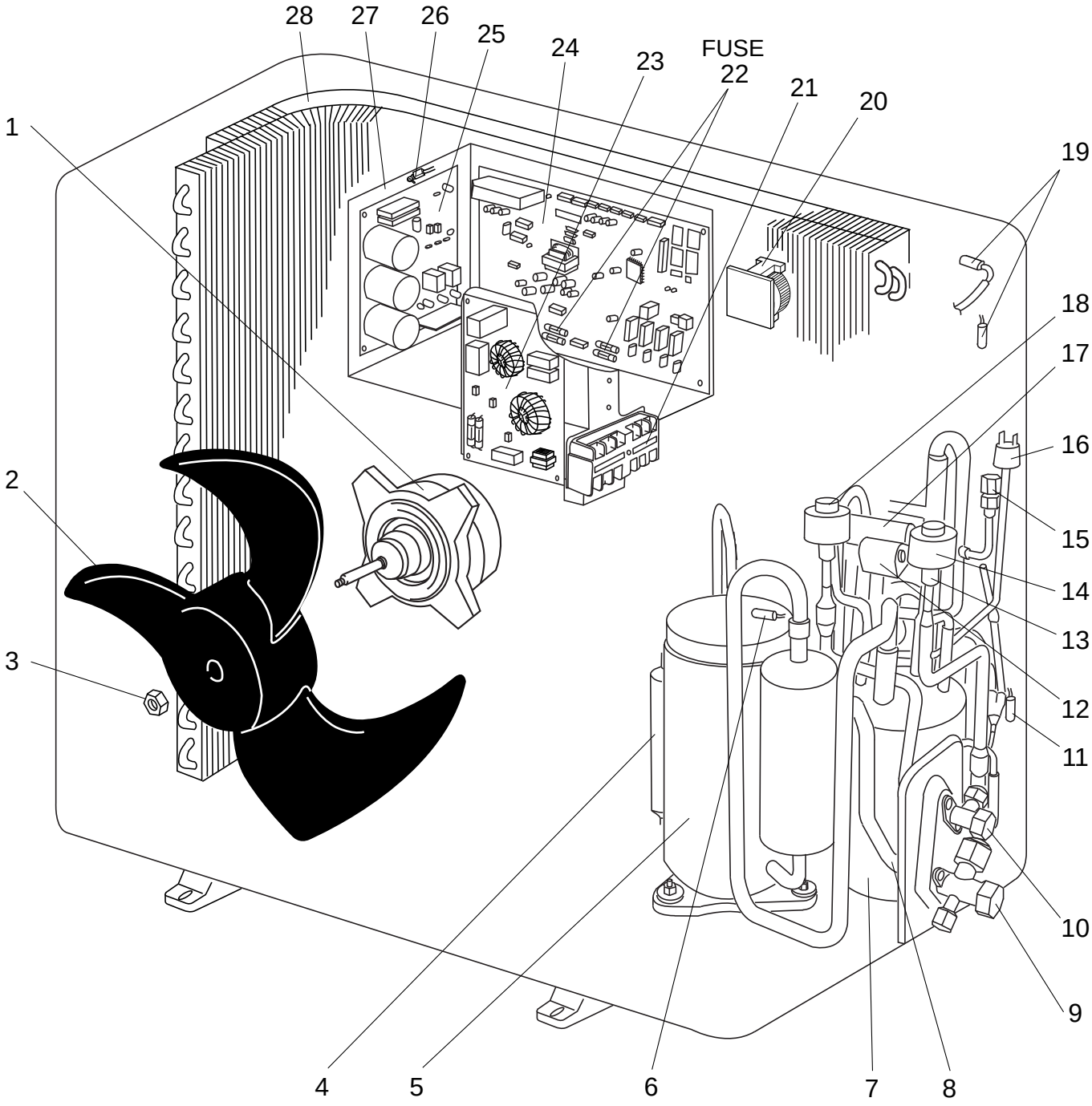
No.	Part No.	Part Name	Specificatio	Q'ty/set PUHZ-RP 4 5 6 VHA, VHA$_1$			Remarks (Drawing No.)	Wining Diagram Symbol	Recom-mended Q'ty	Price Unit	Price Amount
1	—	F.ST SCREW	(5×10)	38	38	38	(DG12F536H10)				
2	R01 E02 662	SIDE PANEL (L)		1	1	1					
3	T7W E02 691	FAN GRILLE		2	2	2					
4	T7W E02 667	FRONT PANEL		1	1	1					
5	—	SEPARATOR		1	1	1	VHA (BK00C143G27) VHA$_1$(BK00C143G43)				
6	R01 E14 686	BASE ASSY		1	1	1					
7	R01 E07 130	MOTOR SUPPORT		1	1	1					
8	—	VALVE BED ASSY		1	1	1	(BK00C142G07)				
9	R01 30L 655	HANDLE		2	2	2					
10	R01 E00 658	COVER PANEL (FRONT)		1	1	1					
11	R01 E01 658	COVER PANEL (REAR)		1	1	1					
12	R01 E04 661	SIDE PANEL (R)		1	1	1					
13	T7W E03 668	SERVICE PANEL		1	1	1					
14	—	LABEL (MITSUBISHI)		1	1	1	(DG79R130H01)				
15	—	LABEL (INVERTER)		1	1	1	(BK79C208G02)				
16	R01 E01 698	REAR GUARD		1	1	1					
17	R01 E04 641	TOP PANEL		1	1	1					
18	R01 E00 655	HANDLE		1	1	1					

STRUCTURAL PARTS
PUHZ-RP4YHA
PUHZ-RP5YHA
PUHZ-RP6YHA



No.	Part No.	Part Name	Specificatio	Q'ty/set PUHZ-RP 4	Q'ty/set PUHZ-RP 5	Q'ty/set PUHZ-RP 6	Remarks (Drawing No.)	Wining Diagram Symbol	Recom-mended Q'ty	Price Unit	Price Amount
				YHA							
1	—	F.ST SCREW	(5×10)	38	38	38	(DG12F536H10)				
2	R01 E02 662	SIDE PANEL (L)		1	1	1					
3	T7W E02 691	FAN GRILLE		2	2	2					
4	T7W E02 667	FRONT PANEL		1	1	1					
5	—	SEPARATOR		1	1	1	YHA (BK00C409G01)				
6	R01 E14 686	BASE ASSY		1	1	1					
7	T7W E05 130	MOTOR SUPPORT		1	1	1					
8	—	VALVE BED ASSY		1	1	1	(BK00C142G16)				
9	R01 30L 655	HANDLE		2	2	2					
10	R01 E00 658	COVER PANEL (FRONT)		1	1	1					
11	R01 E01 658	COVER PANEL (REAR)		1	1	1					
12	T7W E15 661	SIDE PANEL (R)		1	1	1					
13	T7W E04 668	SERVICE PANEL		1	1	1					
14	—	LABEL (MITSUBISHI)		1	1	1	(DG79R130H01)				
15	—	LABEL (INVERTER)		1	1	1	(BK79C208G02)				
16	R01 E01 698	REAR GUARD		1	1	1					
17	R01 E08 641	TOP PANEL		1	1	1					
18	R01 E00 655	HANDLE		1	1	1					

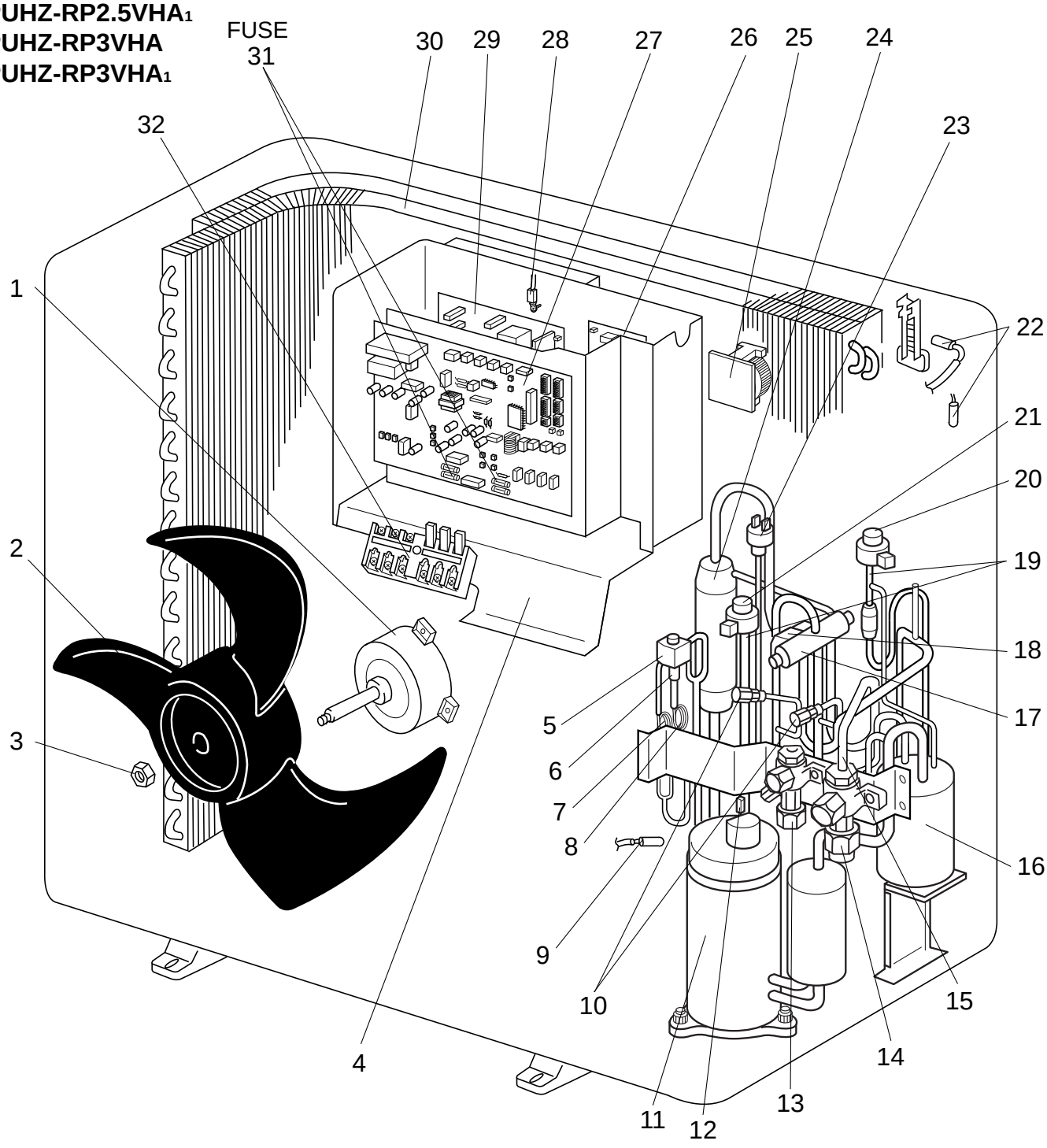
FUNCTIONAL PARTS
PUHZ-RP1.6VHA
PUHZ-RP2VHA



Part numbers that is circled is not shown in the figure.

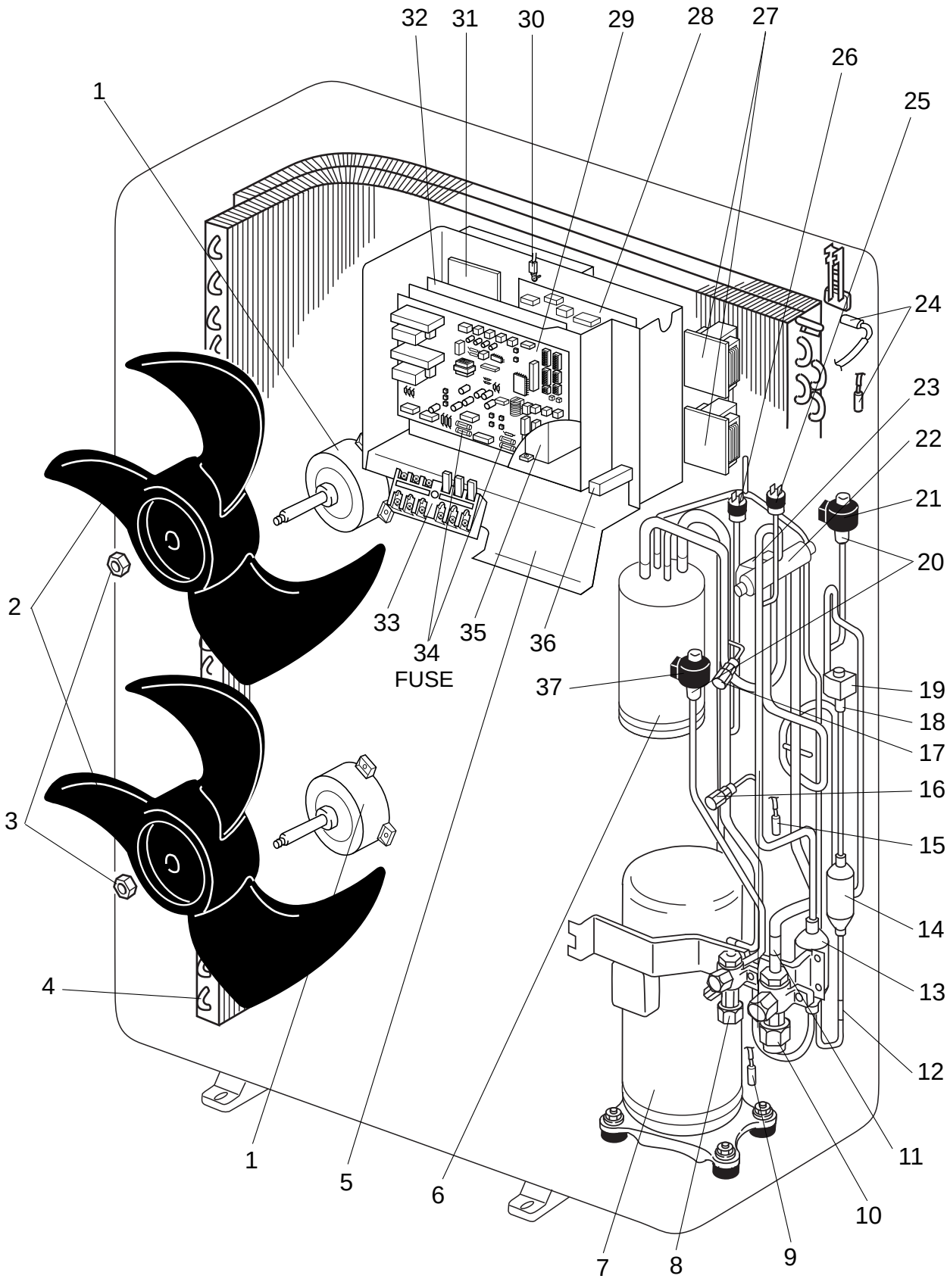
No.	Part No.	Part Name	Specification	Q'ty/set	Remarks (Drawing No.)	Wining Diagram Symbol	Recommended Q'ty	Price	
				PUHZ-RP1.6VHA PUHZ-RP2VHA				Unit	Amount
1	R01 E30 221	FAN MOTOR		1		MF1			
2	R01 E02 115	PROPELLER		1					
3	R01 E04 097	NUT		1					
4	R01 E09 467	MUFFLER		1					
5	T97 420 210	MOTOR FOR COMPRESSOR	SNB130FLBH Including RUBBER MOUNT	1		MC			
6	R01 E03 201	THERMISTOR (DISCHARGE)		1		TH4			
7	R01 E15 440	POWER RECEIVER		1					
8	R01 30L 450	STRAINER		1					
9	R01 E06 411	STOP VALVE (GAS)	1/2	1					
10	R01 E06 410	STOP VALVE (LQUID)	1/4	1					
11	R01 E56 202	THERMISTOR (OUTDOOR PIPE)		1		TH3			
12	T7W E05 242	SOLENOID VALVE COIL (FOUR-WAY VALVE)		1		21S4			
13	R01 E39 401	EXPANSION VALVE		2					
14	R01 E16 242	LINEAR EXPANSION VALVE COIL		1		LEV(A)			
15	R01 E07 403	CHARGE PLUG		1					
16	T7W E02 208	HIGH PRESSURE SWITCH		1		63H			
17	R01 E07 403	FOUR-WAY VALVE		1					
18	R01 E17 242	LINEAR EXPANSION VALVE COIL		1		LEV(B)			
19	R01 E69 202	THERMISTOR (OUTDOOR 2-PHASE PIPE, OUTDOOR)		1		TH6,7			
20	R01 E06 259	REACTOR		1		ACL			
21	T7W E21 716	TERMINAL BLOCK	6P(L,N,⏚,S1,S2,S3)	1		TB1			
22	T7W 520 239	FUSE	250V 6.3A	4		FUSE1,2,3,4			
23	T7W E05 346	NOISE FILTER		1		N.F.			
24	T7W E21 315	CONTROLLER CIRCUIT BOARD		1		C.B.			
25	T7W E09 313	POWER CIRCUIT BOARD		1		P.B.			
26	R01 E65 202	THERMISTOR (HEAT SINK)		1		TH8			
27	—	ELECTRICAL PARTS BOX		1	(RG00N040G08)				
28	R01 E48 408	HEAT EXCHANGER		1					
㉙	R01 E09 413	CHARGE PLUG		1					

FUNCTIONAL PARTS
PUHZ-RP2.5VHA
PUHZ-RP2.5VHA$_1$
PUHZ-RP3VHA
PUHZ-RP3VHA$_1$



No.	Part No.	Part Name	Specification	Q'ty/set				Remarks (Drawing No.)	Wining Diagram Symbol	Recommended Q'ty	Price	
				PUHZ-RP							Unit	Amount
				2.5		3						
				VHA	VHA1	VHA	VHA1					
1	R01 E28 221	FAN MOTOR		1	1	1	1		MF1			
2	R01 E01 115	PROPELLER		1	1	1	1					
3	R01 E02 097	NUT		1	1	1	1					
4	—	ELECTRICAL PARTS BOX		1	1	1	1	(BK00B055G19)				
5	T7W E00 242	SOLENOID VALVE COIL <BYPASS VALVE>		1	1	1	1		SV			
6	R01 E03 428	BYPASS VALVE		1	1	1	1					
7	R01 E15 425	CAPILLARY TUBE	ϕ4.0 X ϕ2.4 X 500mm	1	1	1	1					
8	R01 E16 425	CAPILLARY TUBE	ϕ2.5 X ϕ0.6 X 1000mm	1	1	1	1					
9	R01 17T 201	THERMISTOR (DISCHARGE)		1	1	1	1		TH4			
10	R01 E06 413	CHARGE PLUG		2		2						
	R01 E10 413	CHARGE PLUG			2		2					
11	T97 410 240	MOTOR FOR COMPRESSOR	TNB220FMBH Including RUBBER MOUNT	1	1	1	1		MC			
12	R01 E67 202	THERMISTOR (OUTDOOR PIPE)		1		1			TH3			
	R01 E71 202	THERMISTOR (OUTDOOR PIPE)			1		1		TH3			
13	R01 E05 411	STOP VALVE	3/8	1	1	1	1					
14	R01 E05 410	BALL VALVE	5/8	1	1	1	1					
15	R01 36L 450	STRAINER		1	1	1	1					
16	R01 E13 440	POWER RECEIVER		1	1	1	1					
17	R01 E05 403	FOUR-WAY VALVE		1	1	1	1					
18	T7W E05 242	SOLENOID VALVE COIL <FOUR-WAY VALVE>		1	1	1	1		21S4			
19	R01 E34 401	EXPANSION VALVE		2	2	2	2					
20	R01 E08 242	LINEAR EXPANSION VALVE COIL		1		1			LEV(A)			
	R01 E16 242	LINEAR EXPANSION VALVE COIL			1		1		LEV(A)			
21	R01 E12 242	LINEAR EXPANSION VALVE COIL		1		1			LEV(B)			
	R01 E17 242	LINEAR EXPANSION VALVE COIL			1		1		LEV(B)			
22	R01 E68 202	THERMISTOR (OUTDOOR 2-PHASE PIPE, OUTDOOR)		1	1	1	1		TH6,7			
23	T7W E01 208	HIGH PRESSURE SWITCH		1		1			63H			
	T7W E02 208	HIGH PRESSURE SWITCH			1		1		63H			
24	R01 E01 490	OIL SEPARATOR		1	1	1	1					
25	R01 E06 259	REACTOR		1	1	1	1		ACL			
26	T7W E03 346	NOISE FILTER CIRCUIT BOARD		1	1	1	1		N.F.			
27	T7W E22 315	CONTROLLER CIRCUIT BOARD		1	1	1	1		C.B.			
28	R01 E65 202	THERMISTOR (HEAT SINK)		1	1	1	1		TH8			
29	T7W E10 313	POWER CIRCUIT BOARD		1	1	1	1		P.B.			
30	R01 E44 408	HEAT EXCHANGER		1	1	1	1					
31	T7W 520 239	FUSE	250V 6.3A	4	4	4	4		FUSE1,2,3,4			
32	T7W E16 716	TERMINAL BLOCK	6P(L,N,⏚,S1,S2,S3)	1	1	1	1		TB1			

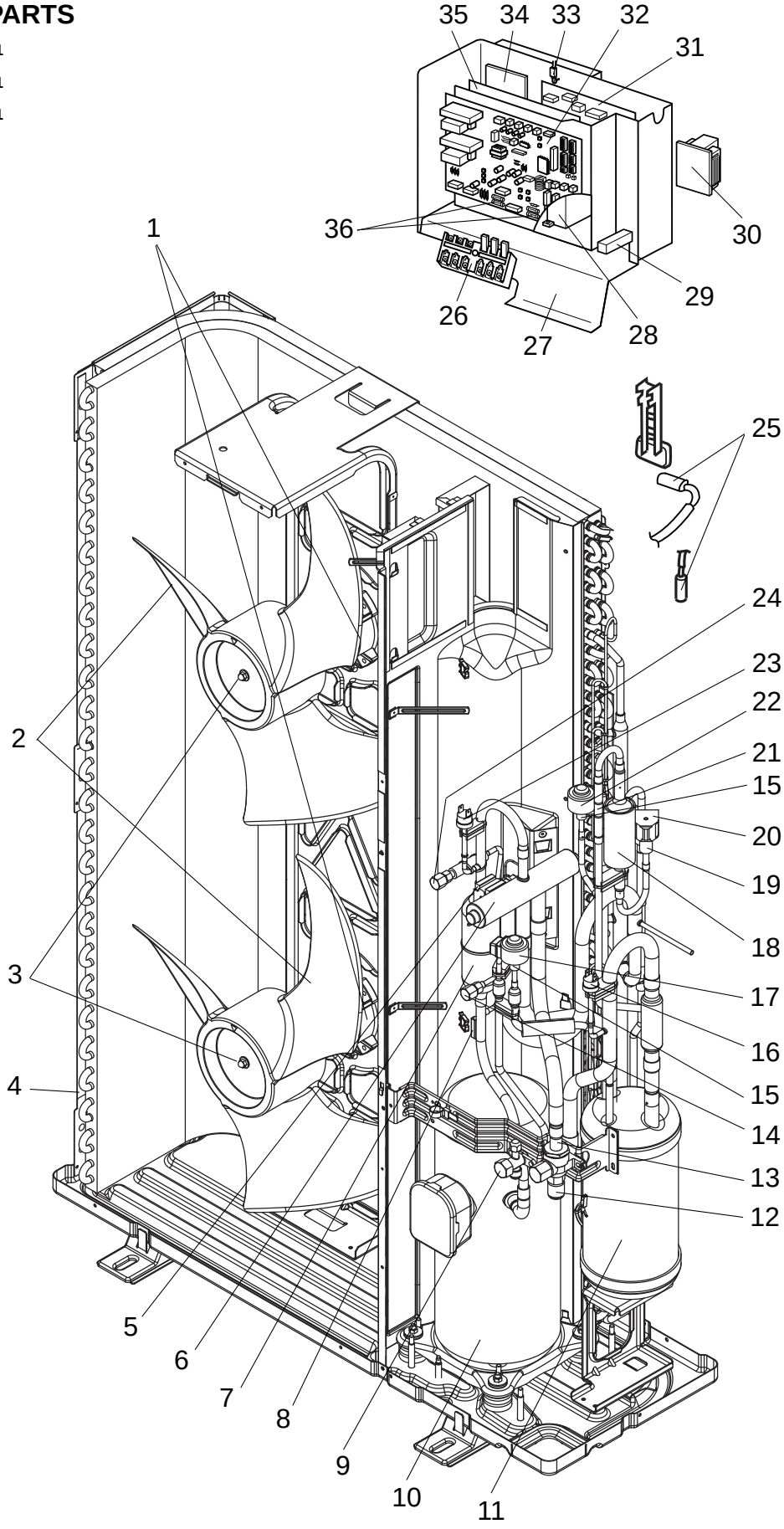
FUNCTIONAL PARTS
PUHZ-RP4VHA
PUHZ-RP5VHA
PUHZ-RP6VHA



Part numbers that is circled is not shown in the figure.

No.	Part No.	Part Name	Specification	Q'ty/set			Remarks (Drawing No.)	Wining Diagram Symbol	Recommended Q'ty	Price	
				PUHZ-RP						Unit	Amount
				4	5	6					
				VHA							
1	R01 E29 221	FAN MOTOR		2	2	2		MF1,2			
2	R01 E01 115	PROPELLER		2	2	2					
3	R01 E02 097	NUT		2	2	2					
4	R01 E46 408	HEAT EXCHANGER		1	1	1					
5	—	ELECTRICAL PARTS BOX		1	1	1	(BK00B055G18)				
6	R01 E14 440	POWER RECEIVER		1	1	1					
7	T97 410 740	MOTOR FOR COMPRESSOR	ANV33FDAMT Including RUBBER MOUNT	1	1	1		MC			
8	R01 E05 411	STOP VALVE	3/8	1	1	1					
9	R01 E02 201	THERMISTOR (DISCHARGE)		1	1	1		TH4			
10	R01 E05 410	BALL VALVE	5/8	1	1	1					
11	R01 36L 450	STRAINER		1	1	1					
12	R01 E02 418	RESTRICTOR VALVE		1	1	1					
13	R01 E05 467	MUFFLER		1	1	1					
14	—	REPLACE FILTER		1	1	1	(BK00C119G02)				
15	R01 E66 202	THERMISTOR (OUTDOOR PIPE)		1	1	1		TH3			
16	R01 E06 413	CHARGE PLUG		1	1	1					
17	R01 E08 413	CHARGE PLUG		1	1	1					
18	R01 E03 428	BYPASS VALVE		1	1	1					
19	T7W E00 242	SOLENOID VALVE COIL <BYPASS VALVE>		1	1	1		SV			
20	R01 E33 401	EXPANSION VALVE		2	2	2					
21	T7W E03 242	LINEAR EXPANSION VALVE COIL		1	1	1		LEV(A)			
22	R01 E06 403	FOUR-WAY VALVE		1	1	1					
23	T7W A01 242	SOLENOID COIL <FOUR-WAY VALVE>		1	1	1		21S4			
24	R01 E68 202	THERMISTOR (OUTDOOR 2-PHASE PIPE, OUTDOOR)		1	1	1		TH6,7			
25	T7W E01 208	HIGH PRESSURE SWITCH		1	1	1		63H			
26	R01 25T 209	LOW PRESSURE SWITCH		1	1	1		63L			
27	T7W E01 259	REACTOR		2	2	2		DCL1, DCL2			
28	T7W E07 313	POWER CIRCUIT BOARD		1	1	1		P.B.			
29	T7W E22 315	CONTROLLER CIRCUIT BOARD		1	1	1		C.B.			
30	R01 E65 202	THERMISTOR (HEAT SINK)		1	1	1		TH8			
31	T7W E00 233	ACTIVE FILTER MODULE		1	1	1		ACTM			
32	T7W E04 346	NOISE FILTER CIRCUIT BOARD		1	1	1		N.F.			
33	T7W E16 716	TERMINAL BLOCK	6P(L,N,⏚,S1,S2,S3)	1	1	1		TB1			
34	T7W 520 239	FUSE	250V 6.3A	4	4	4		FUSE1,2,3,4			
35	T7W E02 259	52C RELAY		1	1	1		52C			
36	T7W E01 234	RESISTOR		1	1	1		RS			
37	T7W E04 242	LINEAR EXPANSION VALVE COIL		1	1	1		LEV(B)			
(38)	T7W E05 254	MAIN SMOOTHING CAPACITOR		1	1	1		CE			

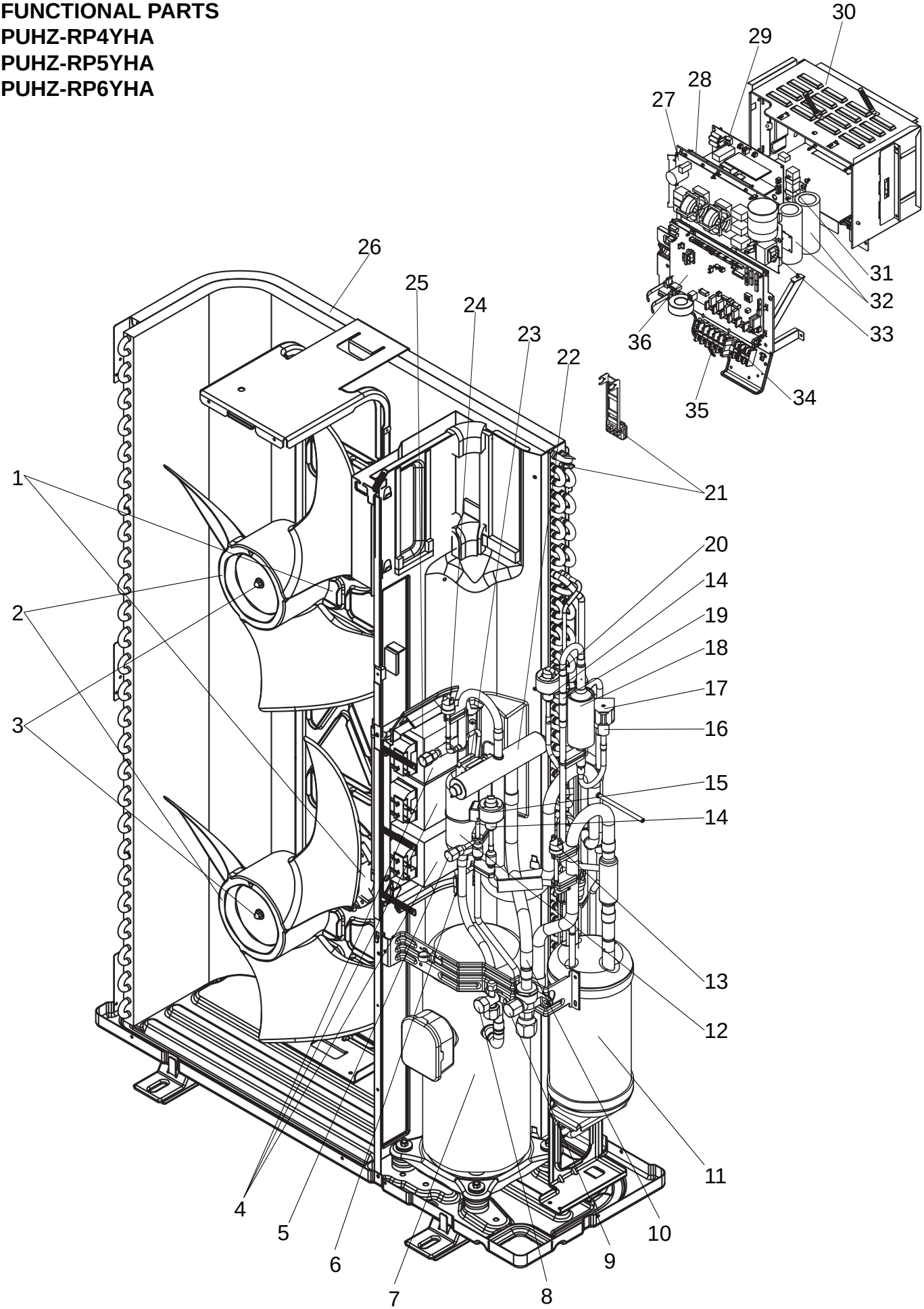
FUNCTIONAL PARTS
PUHZ-RP4VHA$_1$
PUHZ-RP5VHA$_1$
PUHZ-RP6VHA$_1$



Part numbers that are circled are not shown in the figures.

No.	Part No.	Part Name	Specification	Q'ty/set PUHZ-RP 4 VHA1	Q'ty/set PUHZ-RP 5 VHA1	Q'ty/set PUHZ-RP 6 VHA1	Remarks (Drawing No.)	Wining Diagram Symbol	Recommended Q'ty	Price Unit	Price Amount
1	R01 E29 221	FAN MOTOR		2	2	2		MF1,2			
2	R01 E01 115	PROPELLER		2	2	2					
3	R01 E02 097	NUT		2	2	2					
4	R01 E58 408	HEAT EXCHANGER		1	1	1					
5	T7W A01 242	SOLENOID COIL <FOUR-WAY VALVE>		1	1	1		21S4			
6	R01 E06 403	FOUR-WAY VALVE		1	1	1					
7	R01 E05 467	MUFFLER		1	1	1					
8	R01 17T 201	THERMISTOR (DISCHARGE)		1	1	1		TH4			
9	R01 E05 411	STOP VALVE	3/8	1	1	1					
10	T97 410 740	MOTOR FOR COMPRESSOR	ANV33FDAMT Including RUBBER MOUNT	1	1	1		MC			
11	R01 E28 440	POWER RECEIVER		1	1	1					
12	R01 E05 410	BALL VALVE	5/8	1	1	1					
13	R01 36L 450	STRAINER		1	1	1					
14	R01 E05 413	CHARGE PLUG		1	1	1					
15	R01 E33 401	EXPANSION VALVE		2	2	2					
16	R01 25T 209	LOW PRESSURE SWITCH		1	1	1		63L			
17	R01 E17 242	LINEAR EXPANSION VALVE COIL		1	1	1		LEV(B)			
18	—	REPLACE FILTER		1	1	1	(BK00C119G02)				
19	R01 E03 428	BYPASS VALVE		1	1	1					
20	T7W E00 242	SOLENOID VALVE COIL <BYPASS VALVE>		1	1	1		SV			
21	R01 E02 418	RESTRICTOR VALVE		1	1	1					
22	R01 E16 242	LINEAR EXPANSION VALVE COIL		1	1	1		LEV(A)			
23	T7W E02 208	HIGH PRESSURE SWITCH		1	1	1		63H			
24	R01 E08 413	CHARGE PLUG		1	1	1					
25	R01 E75 202	THERMISTOR (OUTDOOR 2-PHASE PIPE, OUTDOOR)		1	1	1		TH6,7			
26	T7W E16 716	TERMINAL BLOCK	6P(L,N,⏚,S1,S2,S3)	1	1	1		TB1			
27	—	ELECTRICAL PARTS BOX		1	1	1	(BK00B055G18)				
28	T7W E02 259	52C RELAY		1	1	1		52C			
29	T7W E01 234	RESISTOR		1	1	1		RS			
30	T7W E03 259	REACTOR		1	1	1		DCL			
31	T7W E07 313	POWER CIRCUIT BOARD		1	1	1		P.B.			
32	T7W E22 315	CONTROLLER CIRCUIT BOARD		1	1	1		C.B.			
33	R01 E65 202	THERMISTOR (HEAT SINK)		1	1	1		TH8			
34	T7W E00 233	ACTIVE FILTER MODULE		1	1	1		ACTM			
35	T7W E04 346	NOISE FILTER CIRCUIT BOARD		1	1	1		N.F.			
36	T7W 520 239	FUSE	250V 6.3A	4	4	4		FUSE1,2,3,4			
(37)	R01 E66 202	THERMISTOR (OUTDOOR PIPE)		1	1	1		TH3			
(38)	T7W E05 254	MAIN SMOOTHING CAPACITOR		1	1	1		CE			

FUNCTIONAL PARTS
PUHZ-RP4YHA
PUHZ-RP5YHA
PUHZ-RP6YHA



Part numbers that are circled are not shown in the figures.

No.	Part No.	Part Name	Specification	Q'ty/set			Remarks (Drawing No.)	Wining Diagram Symbol	Recommended Q'ty	Price	
				PUHZ-RP						Unit	Amount
				4	5	6					
				YHA							
1	R01 E41 221	FAN MOTOR		2	2	2		MF1,2			
2	R01 E01 115	PROPELLER		2	2	2					
3	R01 E02 097	NUT		2	2	2					
4	T7W E07 259	REACTOR		3	3	3		ACL1,2,3			
5	R01 E05 413	CHARGE PLUG		1	1	1					
6	R01 A19 201	THERMISTOR (DISCHARGE)		1	1	1		TH4			
7	T97 410 743	MOTOR FOR COMPRESSOR	ANV33FDBMT Including RUBBER MOUNT	1	1	1		MC			
8	R01 E05 411	STOP VALVE	3/8	1	1	1					
9	R01 E05 410	BALL VALVE	5/8	1	1	1					
10	R01 36L 450	STRAINER		1	1	1					
11	R01 E28 440	POWER RECEIVER		1	1	1					
12	R01 E05 467	MUFFLER		1	1	1					
13	R01 25T 209	LOW PRESSURE SWITCH		1	1	1		63L			
14	R01 E55 401	EXPANSION VALVE		2	2	2					
15	R01 E26 242	LINEAR EXPANSION VALVE COIL		1	1	1		LEV(B)			
16	R01 E11 428	BYPASS VALVE		1	1	1					
17	T7W E10 242	SOLENOID VALVE COIL <BYPASS VALVE>		1	1	1		SV			
18	—	REPLACE FILTER		1	1	1	(BK00C119G02)				
19	R01 E02 418	RESTRICTOR VALVE		1	1	1					
20	T7W E09 242	LINEAR EXPANSION VALVE COIL		1	1	1		LEV(A)			
21	R01 E75 202	THERMISTOR (OUTDOOR 2-PHASE PIPE, OUTDOOR)		1	1	1		TH6,7			
22	R01 E06 403	FOUR-WAY VALVE		1	1	1					
23	T7W A01 242	SOLENOID COIL <FOUR-WAY VALVE>		1	1	1		21S4			
24	T7W E02 208	HIGH PRESSURE SWITCH		1	1	1		63H			
25	R01 E08 413	CHARGE PLUG		1	1	1					
26	R01 E58 408	HEAT EXCHANGER		1	1	1					
27	T7W E08 346	NOISE FILTER CIRCUIT BOARD		1	1	1		N.F.			
28	T7W E39 310	CONVERTER CIRCUIT BOARD		1	1	1		CONV.B.			
29	T7W E13 313	POWER CIRCUIT BOARD		1	1	1		P.B.			
30	—	ELECTRICAL PARTS BOX		1	1	1	(BK00C410G02)				
31	R01 E08 233	RESISTOR		1	1	1		RS			
32	T7W E03 254	MAIN SMOOTHING CAPACITOR		2	2	2		CB1, CB2			
33	T7W E06 259	REACTOR		1	1	1		ACL4			
34	T7W E22 716	TERMINAL BLOCK	3P (S1,S2,S3)	1	1	1		TB2			
35	T7W E06 716	TERMINAL BLOCK	5P (L1,L2,L3,N,⏚)	1	1	1		TB1			
36	T7W E26 315	CONTROLLER CIRCUIT BOARD		1	1	1		C.B.			
(37)	R01 E02 293	FUSE	250V 6.3A	4	4	4		FUSE1,2,3,4			
(38)	R01 E66 202	THERMISTOR (OUTDOOR PIPE)		1	1	1		TH3			
(39)	T7W E06 254	CAPACITOR		1	1	1		CK			

14 OPTIONAL PARTS

14-1. DRAIN SOCKET

Part No.	PAC-SG61DS-E
Applied models	PUHZ-RP1.6, 2, 2.5, 3, 4, 5, 6VHA PUHZ-RP4, 5, 6YHA

14-2. AIR OUTLET GUIDE

Part No.	PAC-SG59SG-E
Applied models	PUHZ-RP1.6, 2, 2.5, 3, 4, 5, 6VHA PUHZ-RP4, 5, 6YHA

※ PUHZ-RP4, 5, 6VHA needs two piece.

14-3. DRAIN PAN

Part No.	PAC-SG64DP-E
Applied models	PUHZ-RP1.6, 2, 2.5, 3, 4, 5, 6VHA PUHZ-RP4, 5, 6YHA

14-4. A CONTROL SERVICE TOOL

Part No.	PAC-SK52ST
Applied models	PUHZ-RP1.6, 2, 2.5, 3, 4, 5, 6VHA PUHZ-RP4, 5, 6YHA

14-5. A-M CONVERTER

Part No.	PAC-SF70MA-E
Applied models	PUHZ-RP1.6, 2, 2.5, 3, 4, 5, 6VHA PUHZ-RP4, 5, 6YHA

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